INDUSTRIAL MEDICINE

Industrial Health, Occupational Medicine and Traumatic Surgery

SOCIAL SCIENCES

March, 1946

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DETROIT

A Comprehensive Mental Hygiene Program
— Caterpillar Tractor Company —

Prevention of Oral Diseases
— Of Occupational Origin —

Industrial Physician & Community Practitioner
— Their Relationships —

The Physically Impaired Worker
— In Industry —

Industry and Medicine
— What Each Expects of the Other —

Industrial Medical Service
— For the Smaller Plants —

Venereal Disease
— Industry's Stake in Its Control —

Industrial Hygiene
— In New Zealand —

A Factory Medical Center
— Lockheed Hydraulic Brake Co., England —

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— Comment on Certain Trends in the Literature —

Volume 15 Number 3

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1. Solis-Cohen, S. and Githens, T. S.: Pharmacotherapeutics, ed. 1, New York, D. Appleton and Company, 1928, p. 1375.
2. Tuft, L. and Levin, N. M.: Studies of the Expectorant Action of the Iodides, Am. J. M. Sc. 203:717 (May) 1942.

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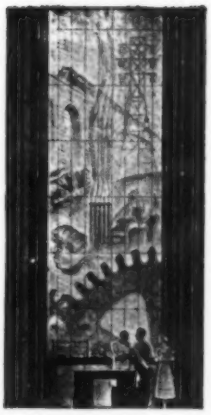

INDUSTRIAL HYGIENE
INDUSTRIAL MEDICINE
& RAILROAD SURGERY

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DR. VONACHEN and his associates, in their article, "A Comprehensive Mental Hygiene Program at Caterpillar Tractor Co.," refer to their Program as "for human engineering." This is a good name, as far as it goes. But it falls far short of describing the "human" possibilities of the plan; there certainly must be a better word than "engineering." Illustrative is the experience of the young man who turned from the profession of civil engineering to that of the law, and found himself almost baffled for a long time by the differences between the definite and standard units of weight, quantity, distance, and position, and the intangibles of the human mental process, as evidenced in such things as moods, emotions, feelings, preferences, changes of mind. In dealing with the latter, there is little that can be considered as exact, excepting, in most cases, the outcome. Regardless of terms, however, the appreciation of this remarkable development in industrial medicine will be that it is a program for "human adaptation." There is *something* of use and value in everyone, but often those who possess it are not able to determine what it is. Here, in this Program, is the assembly of all the outside help and guidance that can be brought to bear on the problem of bringing it out, and making it the basis of that self-respect which comes from finding one's place, no matter what it may be, and filling it with a sense of usefulness, and, as the editorial, on page 202, emphasizes, a sense of personal, individual, *importance*. . . . IN ADDITION to the other features in these pages, there are two "feature" book reviews—one of a book on industrial nursing *by an industrial nurse who is a successful practitioner of the profession she writes about;* the other of a monograph on industrial medicine by a Ph.D. The volume on industrial nursing is fully deserving of the high praise it is given.

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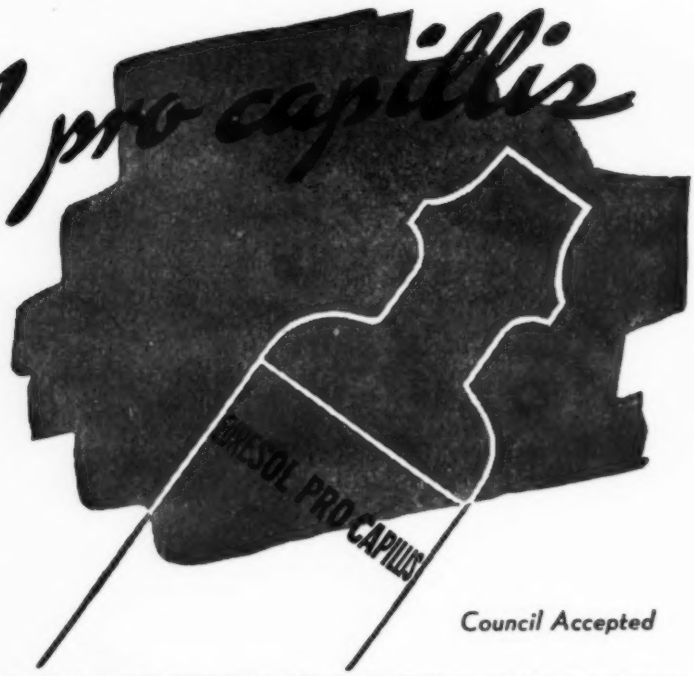

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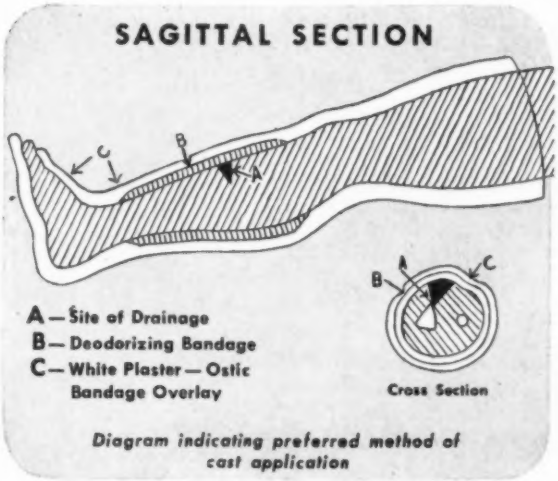

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PERSONAL

DR. EDWARD C. RILEY, recently released from active duty in the Army, has been appointed Assistant Medical Director, Clinton Engineer Works—Tennessee Eastman Division, Oak Ridge, Tennessee, effective February 1. DR. RILEY received his M.E. at Cornell in 1931; his M.S. at Harvard in 1934, and his M.D. at Cornell College in 1941. Previous to taking up the study of medicine he was engaged in industrial hygiene engineering, and for a period was with the Industrial Hygiene Division of the U. S. Public Health Service.

DR. N. J. CARROZZO, has been assigned from the U. S. Public Health Service as acting medical director for the Iowa State Division of Industrial Hygiene.

DR. GEORGE H. PETERSON, formerly of Elgin, Illinois, and recently a Captain in the Medical Corps, Army Air Force, has been appointed Medical Director, Fairbanks Morse & Company, Beloit, Wisconsin.

DR. MICHAEL LAKE has returned from a military leave of absence to his position as Medical Director of Macy's, New York City.

DR. I. DONALD FAGIN, has been appointed Medical Director of the Health Institute of the United Automobile Workers—CIO.

DR. WAYNE L. RITTER, Louisville, has resigned as Director of the Kentucky Bureau of Industrial Hygiene.

DR. WALTER T. GREAVEN, industrial physician and surgeon of Rosario, Argentine, is spending several months in this country, visiting medical departments representative of the various kinds of industry.

LIEUT. COMDR. JOHN F. SHRONTS, returning from nearly four years in the Navy, has been appointed Chief of the Division of Industrial Hygiene, Illinois Department of Public Health. DR. SHRONTS graduated at Northwestern University Medical School in 1936. Prior to his Navy service he was District Health Superintendent for the State Department of Public Health, at Woodstock, Illinois.

DR. C. SCOTT MCKINLEY, director of the bureau of industrial hygiene of the West Virginia state health department since May, 1943, has resigned to accept appointment as Medical Director and Plant Physician for the Bakelite Company at

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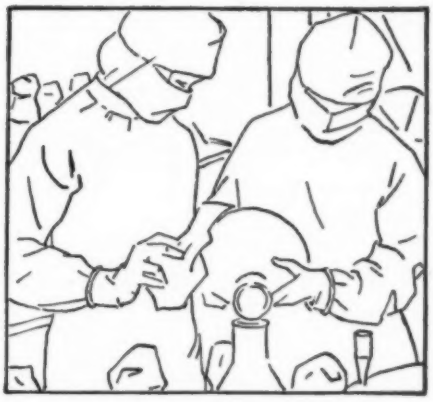

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Boundbrook, New Jersey. DR. MCKINLEY assumed his new duties February 1, 1946.

DR. H. F. WILSON, who recently returned to Columbia following his discharge from the Army, is back on duty with the South Carolina State Board of Health, from which he obtained a leave of absence in July, 1941, to enter active service as a Major in the Medical Corps, AUS. DR. WILSON'S first assignment was Fort George G. Meade, Maryland. He was later transferred to the Medical Division, Office of the Chief, Chemical Warfare Service, Washington, D. C. In November, 1943, be became director of the Toxicological Research Laboratory, Technical Command, Edgewood Arsenal, Maryland. After a tour of duty of six months at Edgewood he was transferred back to Washington. He attended the School of Military Government at Princeton University and was sent to Columbia Medical Center in New York City for a Refresher Course in tropical diseases. He served overseas for a period of 11 months and participated in the battle of the Philippines and the Okinawan campaign. His last assignment on Okinawa was Port Surgeon for Army Ports, headquarters at Naha. He was promoted to the rank of Lieutenant Colonel in 1942 and became a Colonel in January of this year.

EDWARD G. MEITER, Director Industrial Hygiene Division, Employers Mutual Liability Insurance Company of Wisconsin, has returned to the company at Milwaukee after an absence of three months in Europe as one of a group of scientific consultants investigating German industry under the sponsorship of the Foreign Economic Administration. DR. MEITER'S particular field of investigation was industrial hygiene and safety and his report, with ALBERT J. TOERING as co-author, has been published by the Joint Intelligence Objectives Agency, Washington, D. C., under the title, "Industrial Safety in Germany."

DR. JUSTINO MORAES SARMENTO, teacher of health education in the State Normal School of Juiz de Fora, Minas Gerais, Brazil, and Medical Supervisor in a textile mill there, recently visited the Industrial Hygiene Division, U. S. Public Health Service, to study its methods. DR. SARMENTO is spending four months in the United States, studying industrial health education in various universities and observing the medical programs of textile plants in several states. He will apply the knowledge gained in his own teaching program and in the medical activities of his plant. He is the holder of a traveling fellowship from the Office of Inter-American Affairs.

—*Industrial Hygiene News Letter*, January, 1946.

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AMERICAN College of Surgeons announces the resumption in 1946 of its sectional meetings, which during the war were replaced by one-day war sessions. Scheduled meetings are as follows: Tutwiler Hotel, Birmingham, February 8 and 9; William Penn Hotel, Pittsburgh, March 11 and 12; Statler Hotel, Boston, March 18 and 19; Mt. Royal Hotel, Montreal, March 22 and 23; Statler Hotel, Detroit, March 26 and 27; Utah Hotel, Salt Lake City, April 8 and 9; Multnomah Hotel, Portland, Oregon, April 12 and 13, and the Biltmore Hotel, Los Angeles, April 17 and 18.

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A REDUCTION in occupational injuries in New Jersey factories last year . . . . there were 159,600 occupational injuries, compared to 188,739 in the peak year, 1942. The latter figure amounted to 600 injuries every working day . . . . the average on deaths resulting from injuries stands at 247 annually in the last eight years, with the peak at 294 in 1942 and 228 last year. One out of every 500 accidents resulted in death in the eight-year period, with one in 10 workers suffering accidents. But in the peak year 1942 claims totaled 37,364, compared to 47,500 in 1944. In dollars, claims awarded jumped from $6,300,000 in 1938 to $20,000,000 last year.

—From an Item in *Newark, New Jersey, News*, January 30, 1946.

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A ONE-WAY light machine that prevents the left eye from knowing what the right eye is seeing has been developed by the American Optical Company, as a new means of detecting vision deficiencies of industrial workers. DR. PAUL BOEDER, director of the visual science research, said the apparatus is to be used in a new sight-checking program developed by the company in cooperation with industry and the ophthalmic profession after surveys which disclosed that one of every three workmen has some kind of vision defect. The apparatus makes use of the fact that polarized light rays can be made to vibrate in only one plane at a time, in contrast to rays of light from an ordinary source

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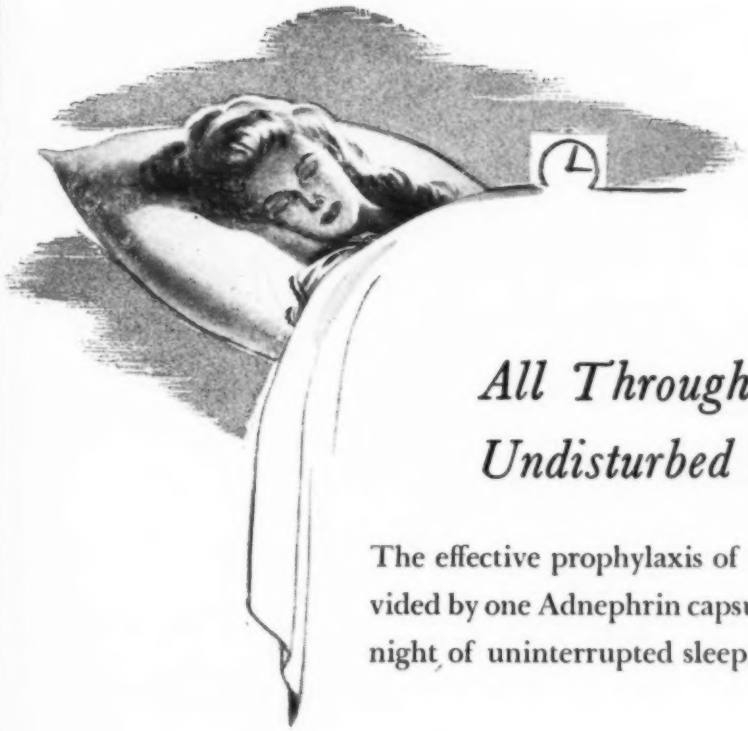

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—*Continued on page 208.*

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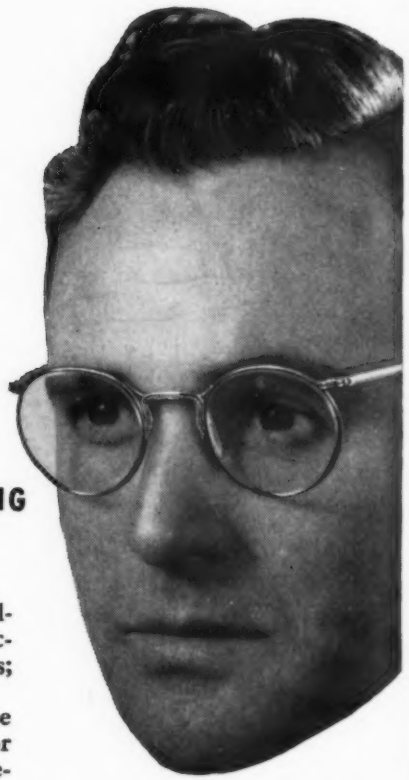

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1. J.A.M.A. 125:536–543 (June 24) 1944
2. J.A.M.A. 125:612–616 (July 1) 1944
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—FOX, NOAH, ET AL.: EFFECT OF SULFATHIAZOLE IN CHEWING GUM IN CERTAIN OROPHARYNGEAL INFECTIONS, ARCH. OF OTOLARYNGOLOGY, *41*:278-283 (APRIL) 1945.

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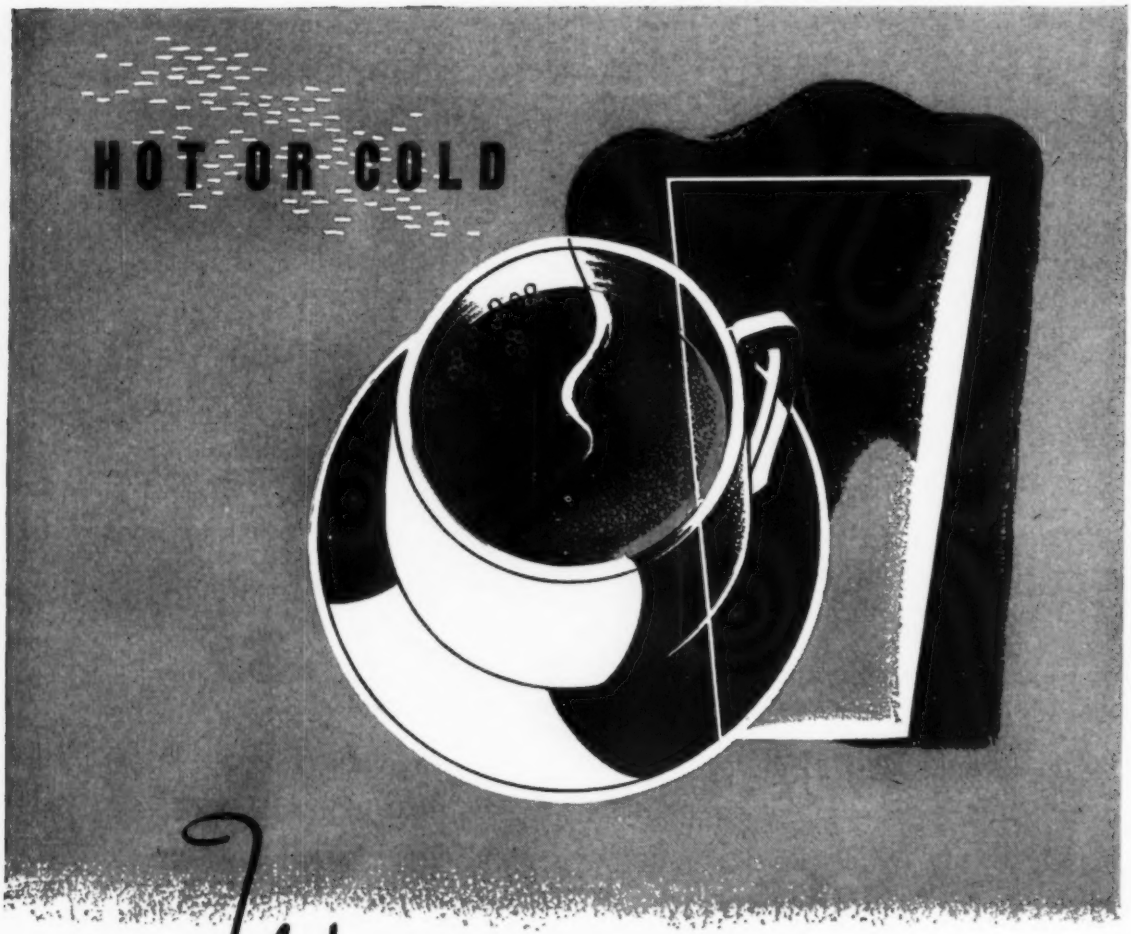

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(1). Wolferman, S. J. and Adams, W. F. Cod Liver Oil Ointments with Sulfonamides, in Wounds and Osteomyelitis. Industrial Medicine 11:318, 319 July, 1942.

(2). Hardin, P. C. Cod Liver Oil Treatment of Burns and Wounds. No. Carolina Medical Journal 1, 92. Feb. 1940.

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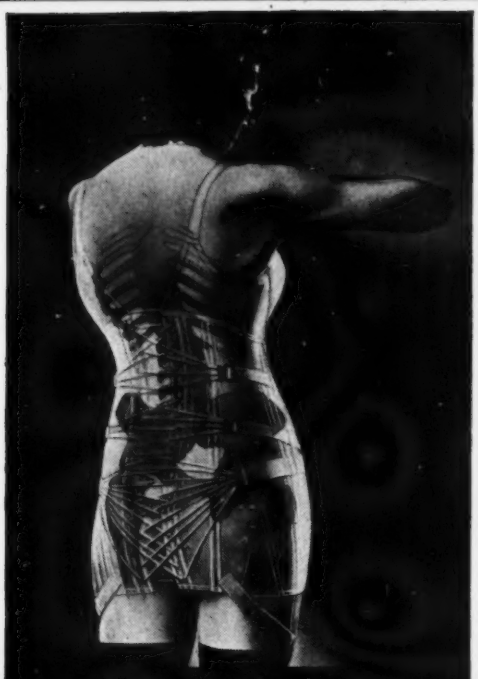

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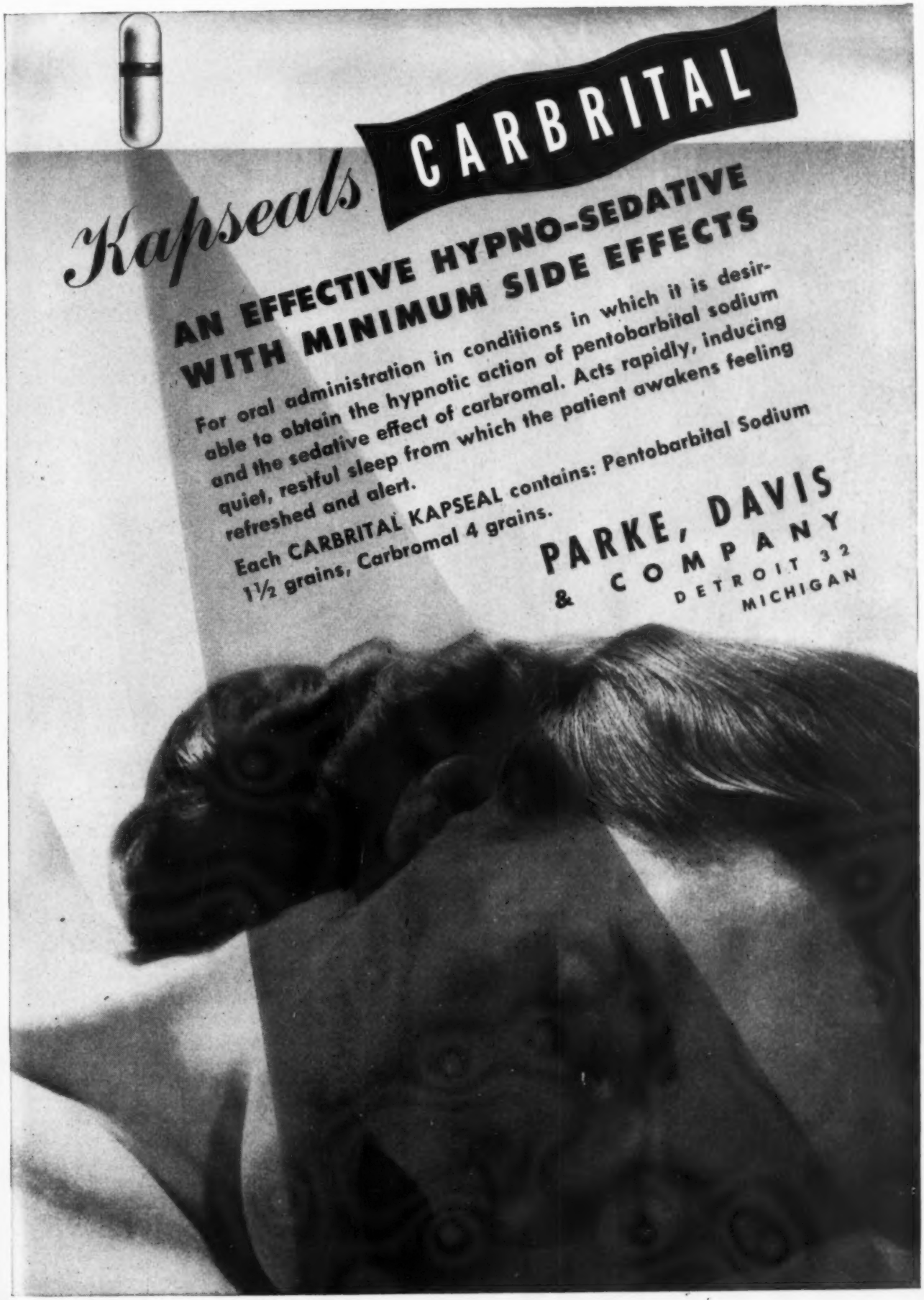
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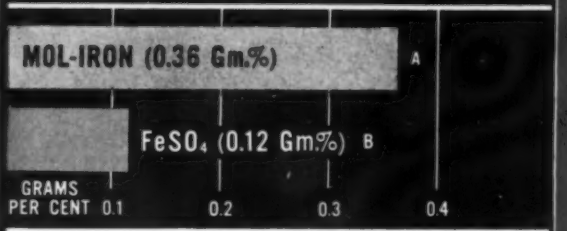
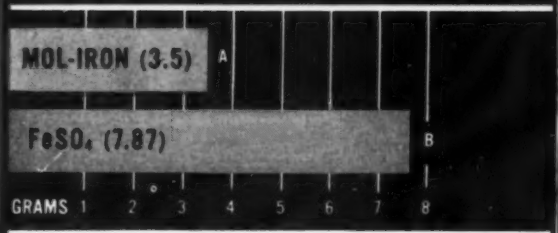
Average Daily Hemoglobin Increase



(A) The group treated with Mol-Iron averaged a daily hemoglobin increase of 2.48 per cent (0.36 Gm. per cent).

(B) The group treated with ferrous sulfate showed an average daily gain of hemoglobin of 0.83 per cent (0.12 Gm. per cent)—a response about one-third as effective.

Therapeutic Intake of Bivalent Iron



(A) The Mol-Iron treated group received an average total of 3.528 Gms. of bivalent iron to produce the sought for result (return to normal blood values).

(B) While an average ingestion of 7.871 Gms. of bivalent iron failed to achieve an optimal response in the ferrous sulfate treated group.

The charts summarize the results of a controlled study of comparative therapeutic response in post-hemorrhagic and nutritional hypochromic anemias.

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2. *McClintock, L. A. and Goodale, R. H.: U. S. Naval Med. Bull., 41:1057, 1943.*
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10. *Report of the Director of The Trudeau Foundation*—1941, by LeRoy U. Gardner, M.D., last page, describing findings based on inhalation tests in which animals were exposed to glass fiber dust.

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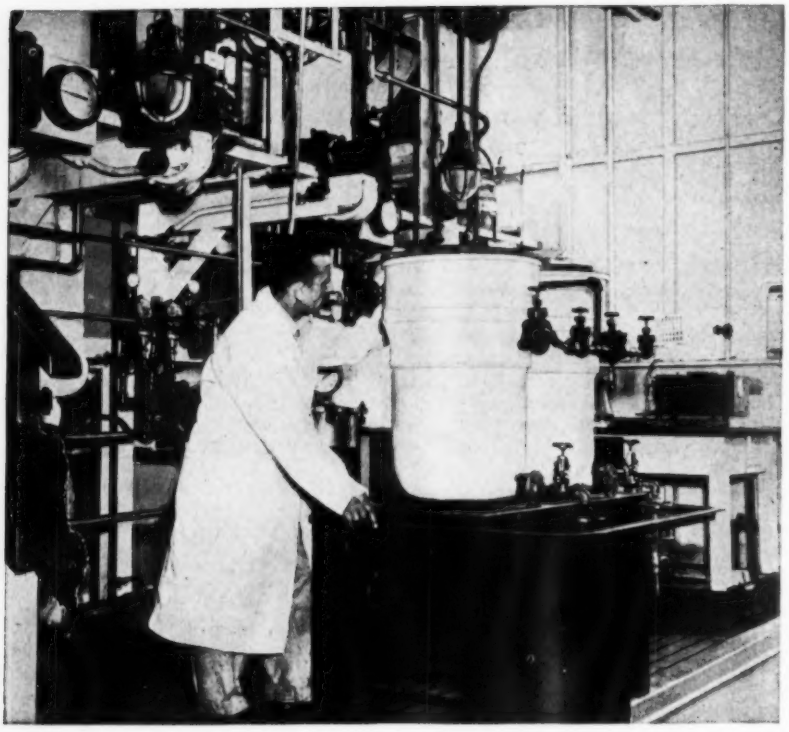

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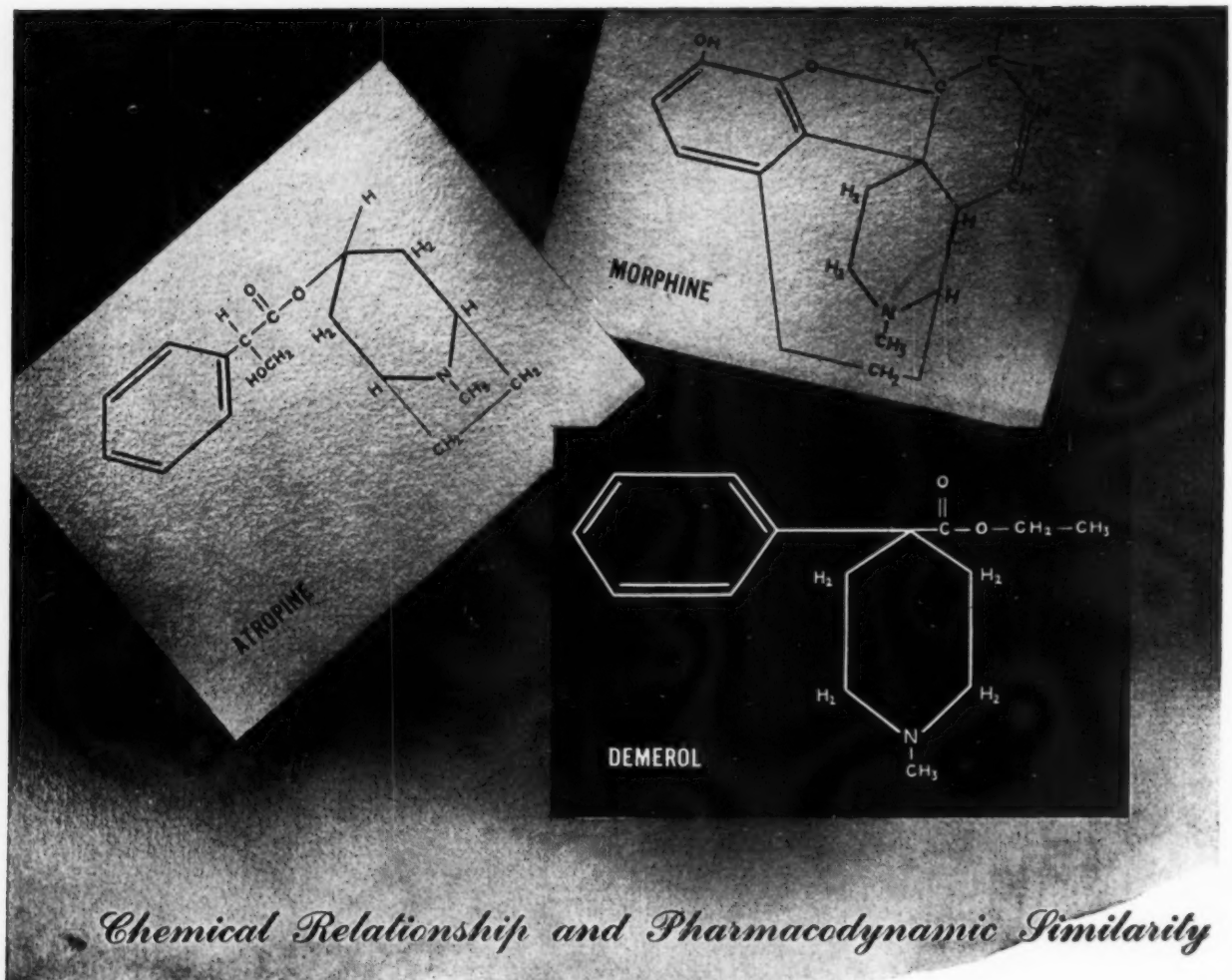

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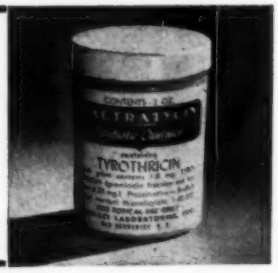

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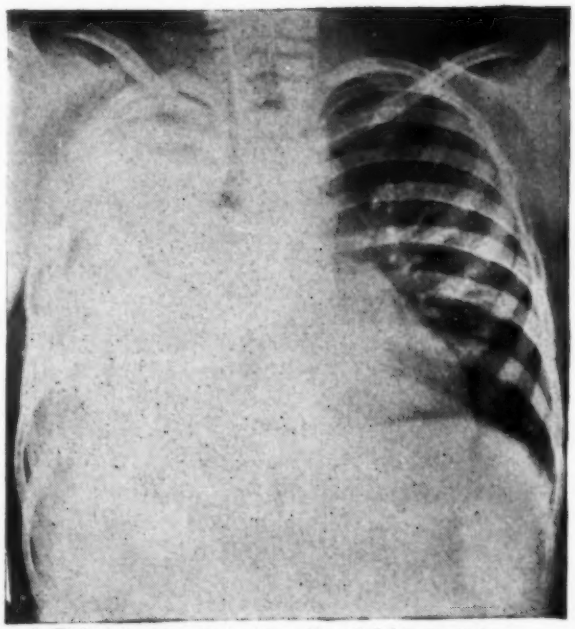

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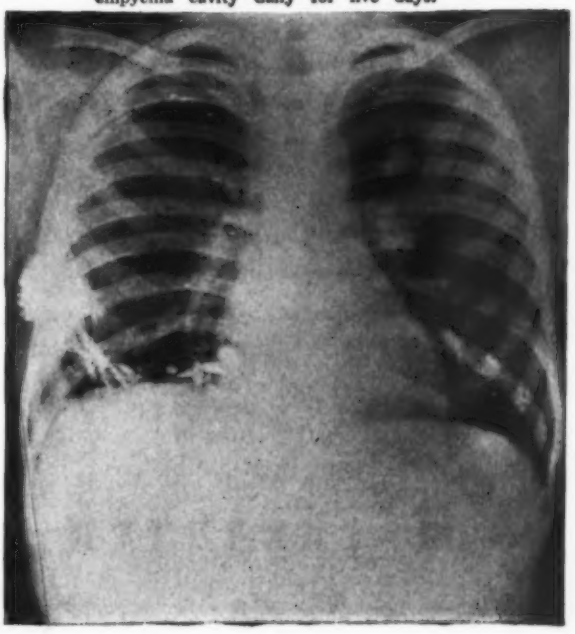

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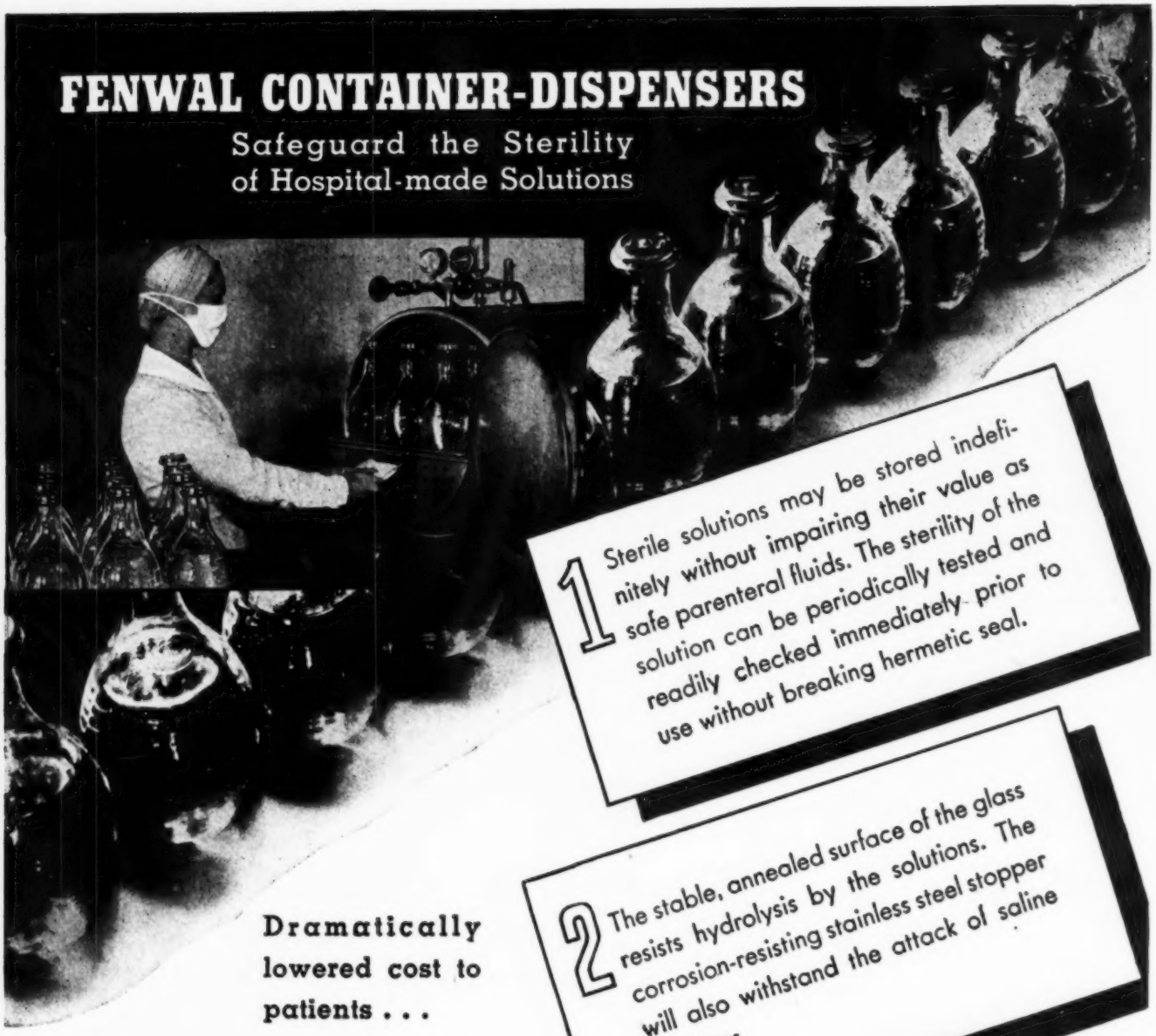

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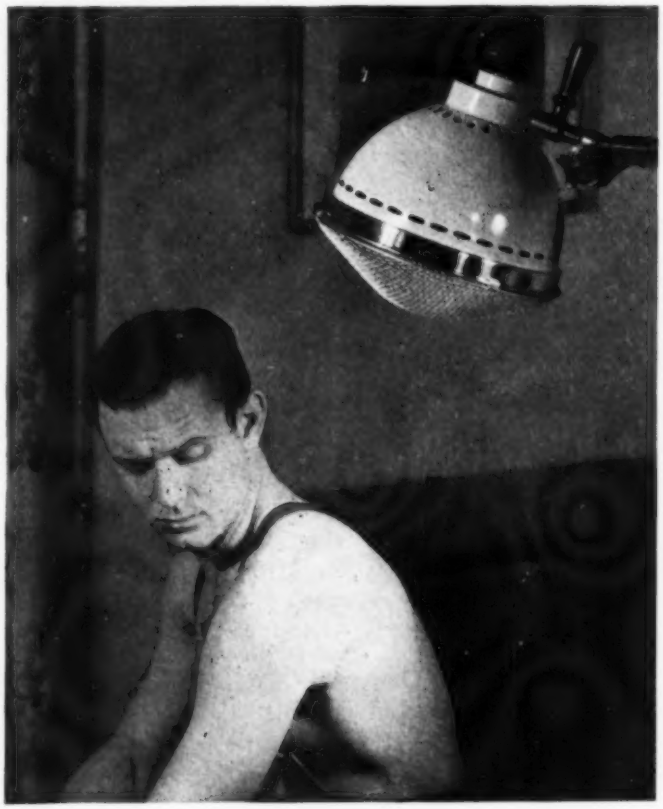

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The Journal of Industrial Health, Occupational Medicine and Traumatic Surgery

With which are consolidated "The Industrial Doctor" and "International Journal of Medicine and Surgery."

The Science, the Law and the Economics of Industrial Health

Volume 15 March, 1946 Number 3

A Comprehensive Mental Hygiene Program at Caterpillar Tractor Co.

—Improving Human Relationships in Industry—

HAROLD A. VONACHEN, M.D.,
BELA MITTELMANN, M.D., MILTON H. KRONENBERG, M.D., ARTHUR WEIDER, Ph.D.,
HAROLD G. WOLFF, M.D.,

From the New York Hospital and the Departments of Medicine (Neurology) and Psychiatry, Cornell University Medical College, New York, N.Y., and the Medical Division of Caterpillar Tractor Co., Peoria, Illinois

THIS paper describes a project devoted to the development of a psychiatric program for industrial organizations. It was carried out with the aid of a grant from the Caterpillar Tractor Co. Other participants in this project are: NORMA WEIDER, M.A., and MARGARET D. MEIXNER.

Introduction

THE concept of mental hygiene has recently begun to play a significant role in modern industrial medical circles. This healthy trend should eventually improve human relations between the employee and the employer.

Industrial medical departments in the past have chiefly confined their efforts to the physical well being of employees with little thought to their emotional problems. Although some organizations have employed consultants on various phases of this topic no complete program to date has been formulated.

The Program for Human Engineering which is described below, represents the combined thoughts and activities of two groups on industrial mental hygiene; namely, Cornell University Medical College and "Caterpillar" Medical. Furthermore, as will be seen, this is a comprehensive program endeavoring to cover all phases of human behavior for the improvement of mental health.

The Caterpillar Program

THE purpose of this paper is to show the operation of the Caterpillar Program for industrial mental hygiene. No extensive surveys or statistical results[5] will be presented here; the recognition and the management of various problems through the use of psychological and psychiatric procedures will be discussed. The methods described below are used as a means for better selection and placement of personnel and never intended to be used as a means for rejection or discrimination against any prospective employee. The research program is designed for the following situations:

1. To assure better selection and placement of new employees, a testing and interviewing technique was introduced.

2. An induction talk fortifying the individual against the stresses of industrial work was developed for new employees to insure good work adjustment.

3. Psychiatric interview was given soon after employment to discover each individual's personal assets and liabilities so as to prevent aggravation of existing disturbances and development of new ones.

4. A lecture series was used to train foremen in the recognition and management of minor emotional problems in persons under their supervision.

5. Routine personality evaluations by means of psychological tests were insti-

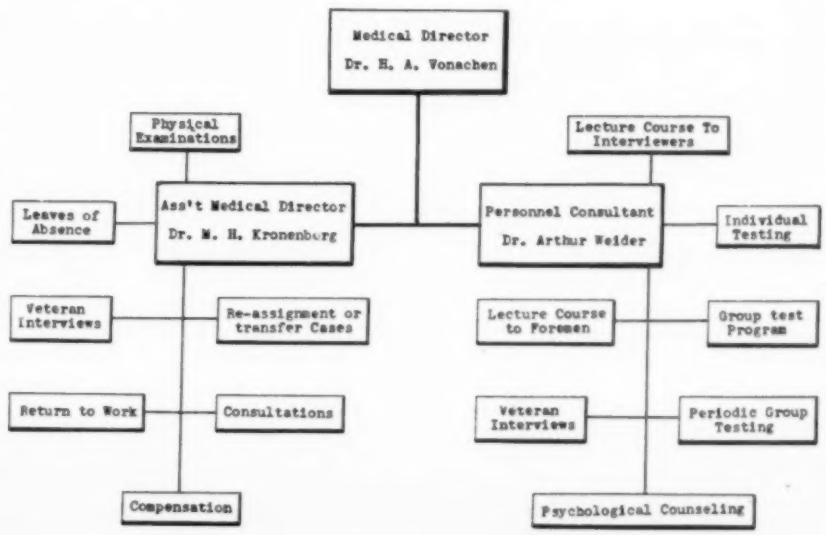

Fig. 1.
Medical Division Activities for the "Caterpillar Program"

tuted to detect personality disturbances before they became pernicious.

6. Psychiatric counseling and brief therapy were made available to those with personality disturbances.

7. Psychological and psychiatric techniques for insuring the readjustment of the veteran to industrial situations were instituted. (See Fig. 1 and Fig. 2.)

Method

SELECTION and Placement: Training of Interviewers and Use of Psychological and Psychiatric Procedures.

Since it is the main function of persons interviewing applicants for employment to screen those who may be fitted into the routine of industry, it is necessary that they have an understanding of at least the essentials of human psychology. To this end a series of lectures was given to the interviewing staff, so designed as to make them aware of the qualities which would militate against good work adjustment. Topics included the use of biographical data such as school and work history as obtained from the application blank, and an explanation of intellectual handicaps and their relation to various types of work. The result of this technique was to broaden the perspective and increase the efficiency of the interviewer. Another training technique consisted of supervised demonstration interviews, wherein the interviewers performed while being observed by the Personnel Consultant. The method of interviewing was criticized for the purpose of improving their skill. In addition to these procedures to enable the interviewers to develop proper habits and interview more satisfactorily, conferences with them in a group were held. These "headache clinics," so called because cases which presented problems to interviewing were discussed, were led by the clinical psychologist also.

Evaluation of the assets and liabilities of personality, intelligence and aptitude by means of psychological test procedures and psychiatric interviews is effective in making more efficient the selection and placement of applicants for employment. By careful selection and suitable placement those difficulties arising from maladjustment to the work situation are avoided. As individuals, employees will be happier and more satisfied at work, and, as a group, their value to the organization will be enhanced. Informing those in supervisory positions as to what can and cannot be expected from such persons is also an important factor in maintaining the emotional health of the employee and a high level of efficiency. Thus, persons with mental and emotional disabilities formerly considered unemployable, can be fitted into the industrial scheme.

It will be seen that while tests of intelligence and aptitude have been widely used in selection and placement the scope of these functions has been widened by the use of procedures such as the Cornell Index, and the Cornell Word Form for the evaluations of personality.

In the fall of 1942, WEIDER, MITTELMANN, WECHSLER and WOLFF developed the Cornell Index. The research on which this personality inventory was constructed was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Cornell University Medical College. The Index has been used successfully for selection purposes in the Armed Forces with both men and women personnel.

Description of Cornell Index: The Cornell Index[1,2,3,4] is a quick, reliable method for measuring emotional adjustment and facilitating diagnosis. It consists of questions concerning complaints caused by emotional

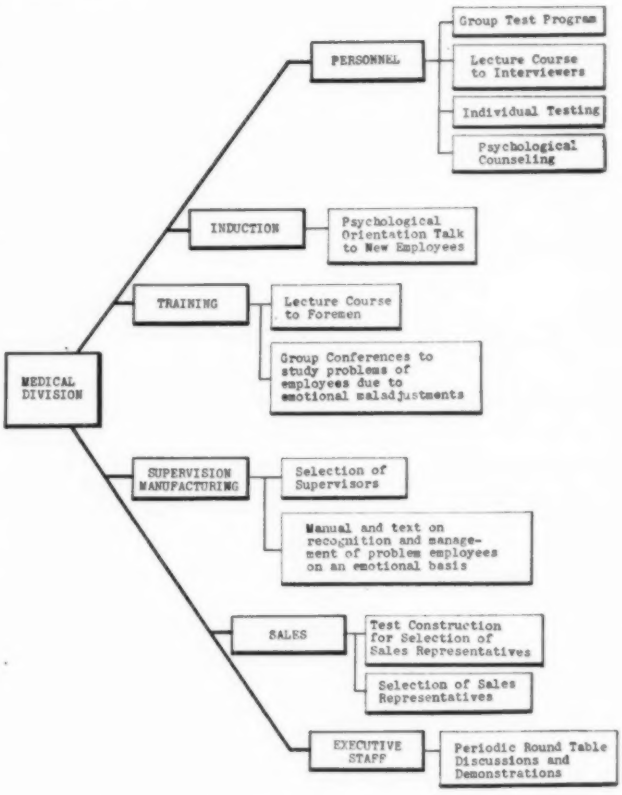
MEDICAL DIVISION
PERSONNEL
Group Test Program
Lecture Course to Interviewers
Individual Testing
Psychological Counseling
INDUCTION
Psychological Orientation Talk to New Employees
TRAINING
Lecture Course to Foremen
Group Conferences to study problems of employees due to emotional maladjustments
SUPERVISION MANUFACTURING
Selection of Supervisors
Manual and text on recognition and management of problem employees on an emotional basis
SALES
Test Construction for Selection of Sales Representatives
Selection of Sales Representatives
EXECUTIVE STAFF
Periodic Round Table Discussions and Demonstrations

Fig. 2.
Inter-Departmental Activities for the "Caterpillar Program"

disturbances, for instance, "Do you have difficulty in falling asleep or staying asleep?" The Index is in essence a short neuropsychiatric and psychosomatic history consisting of 62 questions designed to uncover evidence of defects of a neuropsychiatric and psychosomatic nature. Some of the items are devoted to more crucial symptomatology, for example: "Have you ever gotten into serious trouble or lost your job because of drinking?" and "Have you ever had a fit or convulsion?" These are called "stop questions" because anyone exhibiting such symptoms should be interviewed for neuropsychiatric difficulties. The Index can be useful in two ways:

1. By considering the final score which indicates the number of complaints, and

2. By considering the nature of these complaints.

The Index is self-administered and can be given either in groups or individually; it requires about seven minutes to complete and can be scored in less than one minute by persons with secondary school education or its equivalent. It is an effective time saving device in placing before the interviewing examiner a clinical profile of the subject's personality defects. By bringing to the examiner a body of data assembled according to symptom complexes, it should improve the accuracy of his judgment. It is the brevity of the Index, its simplicity of administration and scoring, its focus on special personality problems, and its easily understood language that recommend its use in the industrial situation.

The Cornell Word Form,[2,3,4] another instrument developed by the Cornell group, is useful for the detection of personality disturbances. Moreover, this test performs the task in a manner not easily apparent to the subject. It consists of a list of stimulus words next to each of which are two other words. The subject is asked to choose the one he thinks fits better the stimulus word. Some of the choices are comparatively obvious in their implication, for example, sleep—com-

fort, restless. Others are not obvious, i.e., mother—mine, woman.

The Index first appeared in the literature in the *Journal of the American Medical Association* for January 22, 1944, where it was read by DR. HAROLD A. VONACHEN, Medical Director of Caterpillar Tractor Co. Correspondence between DR. VONACHEN and the Cornell group resulted in a visit to Caterpillar Tractor Co. made by DRS. MITTLEMANN and WEIDER to discuss the possibility of applying this instrument in industry. The Caterpillar Program was originated as a result of this meeting. It was readily evident to all of the discussants that much more than the Index was desired to broaden the scope of the Medical Division to include the emotional as well as the physical appraisal of employees in industry.

After being hired the new employee is asked to fill out the Cornell Index and the Cornell Word Form. Those who have poor scores are interviewed by the clinical psychologist of the Medical Division. This group is fortified against poor work adjustment by means of preventive psychotherapy.

The effectiveness of these procedures is illustrated in the following case histories:

CASE 1. An 18 year old man who had reached the sixth grade in school applied for employment. During pre-employment interview it was found that his intellectual capacities were small. Ordinarily employment would have been considered out of the question. He was referred to the psychologist who corroborated the low intelligence by means of a brief intelligence test, but pointed out that he might be useful at tasks requiring no mental effort. Since his grotesque obesity and slow mentation might have made him the butt of jibes from his co-workers it was explained to his foreman how this could be prevented. This man has continued to work satisfactorily as a floor sweeper and is happy at his job.

CASE 2. A 35 year old woman was found to be, on psychiatric interview, rigid, meticulous, "fussy" and tense in her daily habits. She was of average intelligence, but had not made a satisfactory work adjustment in the past. This was due to the fact that she had not been able to work among large numbers of people, especially those with low standards of performance. It was decided that she be placed in a secluded office, doing statistical work requiring accuracy. The situation was explained to her supervisor so that these factors would be considered in assigning her work. Her performance has been completely satisfactory to herself and the organization.

Induction, Adjustment and Follow-up

ALL NEW employees go through an induction procedure. This consists of an illustrated lecture explaining the various parts of the plant and giving information on such practical procedures as first aid, the method of calculating wages, safety measures, etc. One part of the induction program deals with emotional adjustment and has two purposes: (1) To make employees realize the potential emotional stresses of the new situation in which they find themselves. This is done in advance to protect them from the results of such stresses. (2) To make them feel that the work they are doing is worth while and that they are contributing to the improvement of their own lives and the betterment of their community and thus increase their interest in their work and their morale.

PSYCHIATRIC INTERVIEW: Evaluation of personal assets and liabilities to prevent aggravation or development of personality disturbances.

All subjects of this investigation were interviewed by a psychiatrist to ascertain the presence of personality and psychosomatic disturbances such as continued or periodic anxiety or depression, delusions and hallucinations, headaches, gastro-intestinal complaints, palpitation, difficulty in breathing, attacks of faintness, dizziness, asthma and arterial hypertension. It further aimed at uncovering histories of alcoholism or criminal behavior and the identification of shut-in tendencies, excitability and irritability, impulsive behavior, worrisomeness, lack of interest, and sexual difficulty. The inquiry also explored such topics as hobbies, relationships with other people, marital status and childhood history.

The technique used in acquiring this information was an easy-going method of questioning, inducing the subject to talk freely and spontaneously. The interview was usually begun with a discussion of the subject's interest in his work and his health record and then went on to the topics mentioned. If the subject became uneasy and refused to continue the discussion it was explained that the purpose of the interview was to ascertain his condition of health in order to place him adequately or to help him with his difficulties.

This explanation was adequate in most instances. If information was thereafter withheld no pressure was exerted to overcome reluctance.

The personality and psychosomatic disturbances revealed during interview were classified as mild, moderately severe or severe on the basis of the nature and intensity of symptoms. They were called mild if the only symptoms were such complaints as occasional gastric distress or sleeplessness. More frequent, persistent or intense symptoms of the same type were rated as moderately severe. In cases where they impaired working efficiency they were called severe.

TRAINING OF FOREMEN: Lecture series on recognition and management of minor emotional problems in persons under their supervision.

There has been expressed in this organization as elsewhere[6] a need among foremen for training in the management of human relations.

A series of lectures was given to foremen to instruct them in the management of employees and their problems, so as to foster good work attitudes. These discussions aimed at making the men aware of the symptoms which heralded a decrease in industrial efficiency.

Not infrequently it may happen that an employee who has been working satisfactorily for some time becomes neglectful, irritable, misses work, makes or gets into difficulties with his foreman or fellow employees. Simple disciplinary action or warning is successful at times, but in the majority of cases difficulties continue, and may even result in inability to continue work. This represents not only a failure for the individual, but also a loss for the plant. However, if such an individual is approached with the realization that some new difficulty has arisen in his life which is upsetting him emotionally and may be the reason for his difficulties, the man may be "salvaged." Efficient and understanding foremen have been able to manage such cases successfully.

As part of our program, foremen were further trained in recognizing such difficulties and handling them adequately. A manual and text designed to train the foremen in the recognition and management of emotional problems that occur in persons under their supervision, is being written to supplement the lecture series. This procedure will be illustrated by the following case:

CASE 3. A 27 year old woman always felt that she had to work in peaceful surroundings. She could not do things in a hurry and used to become nervous under pressure. However, she had always proved herself to be accurate in her work. If errors occurred the understanding foreman discussed them in a quiet, pleasant manner after which she was able to work accurately once more. After working for 15 months she began to neglect her work, was easily upset, and often cried. The foreman asked her in a sympathetic way whether anything troubled her. In the course of this conversation she told the following story:

Her father had died 10 years ago; her mother remarried, but the subject could not get along with her step-father. She was asked whether her mother got along well with him. She said her mother loved him very much. She thought that her mother loved him too much because he had persuaded her to sell her home and the daughter was afraid he would spend the money received because he did not like to work." She was then asked if she had a boy friend. She said she did and that she loved him very much. She was then asked if she were married to him would she trust him and give him any of her property and she said she would trust him with anything. It was explained that her mother felt the same way about her husband, and that the daughter could be satisfied with this and let them alone to enjoy life as they saw fit, and that she should live her own life. She thanked the foreman and said she believed that would be a good thing to do and would try it. She has had no further difficulty with her job.

ROUTINE personality evaluation by means of psychologic tests to detect personality and psychosomatic disturbances before they become pernicious.

The development of personality disturbances which may eventually impair working efficiency and satisfaction, can be prevented by early recognition of symptoms. The Cornell Index and Cornell Word Form described above could be given to employees periodically, much the same as the routine Wassermann for syphilis or chest x-ray for tuberculosis are given for the early recognition of physical disease.

In this way a large body of psychological data is accumulated concerning the individual, which may be used in the diagnosis and management of emotional disturbances. If emotional problems are discussed early, these disturbances can be prevented. The following case will illustrate the procedure and its effectiveness:

CASE 4. A 24 year old woman whose husband was stationed in the Pacific, was afraid that on his return they would not get along and that he would want a divorce. She was also afraid that if she were to become pregnant, she might die in childbirth. The psychiatric interview revealed that several members of her family had been divorced, and that she was married to a man who had once been divorced. Five years previously her sister had died in childbirth and it was at that time that her fear of pregnancy began.

On routine administration of the test she was found to have 23 significant responses on the Index, including complaints of getting nervous and shaky when approached by a superior, often shaking and trembling, and getting suddenly frightened while thinking. On the Word Form she had nine significant responses including THOUGHTS — miserable, FEEL — dizzy, HEAD—hurt.

After two interviews her anxiety was relieved, and she was happier. She also remarked that she had been making frequent minor errors in her work, which she no longer did as she could now apply herself wholeheartedly to her work.

PSYCHIATRIC counselling and brief therapy.

The personality disturbances uncovered by the procedures described above were managed in the Medical Division by the counseling service. The function of this service also included examination of all employees requesting transfer to other positions, or leave of absence.

Requests for transfers to other positions and for leaves of absence because of medical complaints are an important and often troublesome problem in large industrial organizations. Should the employee have a physical ailment, the physician must decide whether it is a justifiable basis for transfer. Frequently it is found to have no structural basis. Explanation of this fact to the patient is not an adequate remedy. Denial of his request leaves him still unhappy.

In approaching such situations both tact and firmness are required. The employee may be resentful at the refusal to grant his request and impatient of the time spent in the procedure. If, on the other hand, the examining physician succeeds in winning the individual's confidence and is able to find out what emotional difficulties are behind his symptoms he often finds it possible to relieve the symptoms, and the subject will again find satisfaction in his job. Thus, the patient is treated—not only his symptoms but his "morale" as well.

While the majority of complaints among persons requesting transfer or leave of absence were of "nervousness" and "fatigue," many physical manifestations such as gastro-intestinal, chest or back pain complaints were also enumerated. On psychiatric examination it was found that anxiety states were responsible for symptoms in 86% of the cases.

The following case history illustrates the successful management of such a transfer problem:

CASE 5. A 27 year old man had been working at the plant for two years. He had always been of a worrisome nature and occasionally had spells of dizziness and palpitation of the heart. For some time the trouble was not severe enough to interfere with his performance. Then, however, his complaints became more severe. He was afraid of the machine and gradually became frightened even when he walked into the plant. He thought that his difficulty was due to the kind of work he was doing and asked for a transfer on the basis of the dizziness and "heart trouble."

He had 21 significant responses on the Cornell Index and 10 bad choices on the Cornell Word Form. After examination he was told that his complaints must be due to emotional disturbance. It was learned that his brother had been killed in an accident six months previously. The two men had been very close. It was following this unfortunate event that his symptoms became worse. One of his fears was that he would be killed as his brother had been. The man realized that his complaints had become worse as a result of his feelings about his brother's misfortune, and that transfer would not help. His complaints gradually disappeared after explanation and reassurance and he has been working adequately.

It was found that when employees knew that help had been obtained by other individuals with personality problems and that this help was available to all, many sought advice. While this service had been made a part of the "return to work" physical examination,

they requested it before the date of their next visit to the medical department, and before the difficulties became serious. This was the ideal opportunity to give the best possible help. The following history illustrates such a case:

CASE 6. A 40 year old man had been working well on his job for two years, when he became moody, hard to get along with and lost interest in his work so that his productivity declined. He often left his job 15 to 30 minutes before quitting time. After about one month he was given a day off as a disciplinary measure. He lost his temper and said that he was tired of being "bossed." He was obviously nervous. At this time a fellow employee who had had his difficulties straightened out by the medical adviser suggested that he follow the same course.

He was found to have 19 significant responses on the Cornell Index and eight bad choices on the Cornell Word Form. The medical adviser had a sympathetic talk with him and it turned out that this man had lost his son in service about three months prior to the beginning of his trouble. He was depressed and a little angry because "other people stayed home while my son had to give his life." The medical adviser discussed the matter with him and suggested that he helped neither himself nor the memory of his son by being upset.

The subject gradually changed his attitude. His efficiency increased and he was once more a friendly and desirable worker.

PSYCHOLOGICAL and psychiatric techniques for insuring the readjustment of the veteran to industrial situations.

All personnel involved in hiring, training and placing of veterans, namely physicians, counselors and foremen, manifested particular interest and understanding, especially in regard to those with personality disturbances. Thus, the latter were generally at first placed at light work. Duties involving heavy machinery, noise, smoke, and pressure for rapid work were avoided. Those who had special skills were permitted for a month or two to limit their work to a few hours each day, interrupting it in case of tension or fatigue. In many instances these men started in the relatively quiet "training shop" working at machines but not as part of routine production. As they increased the number of their hours of work they were fitted into regular production but with permission to work only to tolerance. Gradually they assumed full-time working duties.

At the time of application for employment veterans were classified as being (1) employable without restriction; (2) employable with limitation of working hours and modification of environment; or (3) not employable at present but possibly employable in the future. All considered "normal" or as having mild or moderately severe disturbance and the majority of those with severe disturbance were considered employable.

The veteran with personality disturbance required psychiatric care in order to increase his working efficiency. The administration of psychiatric interviews and pencil and paper procedures to veterans applying for employment proved a practicable and efficient routine and was usually welcomed by the veteran. The findings were useful in placing these men so as to make the fullest use of limited but increasing capabilities.

Thus are created the conditions under which recovery may occur.

Discussion

IT IS NOW well recognized that the physical well being of employees, the institution of safety programs, and the improvement of working environment are factors influencing the satisfaction of employees as well as their effectiveness. What is not yet generally understood is the influence of mental and emotional well being of employees on their daily adjustments in industry.[7]

As a result of his investigation, BRODMAN[8] concluded: "Employees who are emotionally maladjusted to their jobs exhibit the following tetrad of symptoms:

(A) They report frequently to the medical department for advice and treatment.

(B) They have frequent medical absences.

(C) They are often late to work.

(D) They make frequent changes of employment."

In this author's experience, another symptom of equal significance is the request for job re-assignments. Furthermore, he interpreted employees' work attitudes as factors that influence rates of absenteeism due to minor illness, of lateness and of turnover in personnel between the efficiency of one department compared to another.[9]

Other authors have pointed out that the extent of physical disability from illness is related to the personality structure of the individual.[10, 11]

In regard to the accident-prone employee, Dunbar suggested that there existed a definite relationship between this condition and the past emotional adjustment of the individual.[12] The original theory underlying industrial accidents was that they were really accidental. That is, that all individuals working under similar conditions were equally liable to have accidents. Therefore, the conclusion was that to reduce accidents the factors must be altered, hence the guarding of machinery and the innovation of other safety devices. This did, in fact, reduce the accident rate somewhat, but not to the extent that was anticipated or necessary for satisfactory safety. Another investigator was able to show the relationship between emotional factors and the frequency of accidents.[13]

Moreover, the industrial situation requires stability in relationships among human beings in supervisory and subordinate capacities, and among those of equal position in the industrial scale. It usually requires persistent application to work which must be done in a certain way in a given amount of time so as not to interfere with the production schedule. It involves stresses such as smoke, heat, noise and monotony. Should serious personality conflicts arise because of maladjustment either to work conditions or to life situations, absenteeism, high accident rate, grievances and lowered working efficiency or complete failure to work may follow which results in a loss to both the individual and the industry.

Illnesses encountered in industrial situations, like all other illnesses, are frequently due to a variety of causes, some of which may be of physical and others of emotional origin. Hence to understand the etiology of such illnesses, it is necessary to assume that both of these factors are in operation and to proceed to make physical and psychological investigations in each case. It becomes apparent that industrial medicine must embrace hygiene, medicine and psychology and that none of these aspects can be ignored.

The psychiatric and psychologic procedures described in this paper are practicable and useful in the following situations:

1. They are valuable in placing industrial personnel

in positions which make possible the fullest use of their capabilities while reducing to a minimum the possibility that personality disturbances will be elicited or fostered.

2. When such situations do arise the machinery for combating them is ready with counsel and therapy. Efficiency and satisfaction of employees can be maintained by making available to them help with their emotional problems. Experimental evidence to this effect will be found in a study done at the Hawthorne works of the Western Electric Company.[14] It was found that the effectiveness of six superior employees as measured over a period of several years, rose parallel with improvement of "morale" and the possibility of discussing with a sympathetic listener the stresses of their daily existence. The happiness and efficiency of one employee with migraine increased and decreased parallel with the presence or absence of difficulties with her mother.

The use of these procedures in a third situation, i.e., determination of the employability of the applicant for work, (as against placement or management of those already employed), requires caution and tact. It is generally acknowledged that persons with serious psychopathology may be not only employable but superior employees. Although in this investigation no difficulties were encountered, it is conceivable that resentment may be engendered unless the procedures are carried out with great understanding.

These procedures were found to be effective in two directions. They are valuable to the employee in insuring satisfaction and good work adjustment and to management by maintaining efficiency. In short, the Caterpillar Program endeavors to avoid wastefulness of human resources in industry.

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I BELIEVE that there is a growing tendency on the part of prospective investors to measure companies by their industrial relations programs. This is, of course, in line with the concept that results are achieved only through people, and that companies which best understand this problem will be the ones that will excel in the highly competitive postwar market.

Management News, American Management Association, December 31, 1945, quoting an Industrial Relations Director.

Prevention of Oral Diseases

—Of Occupational Origin—

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INDUSTRIAL hygiene, a branch of preventive medicine which is concerned with the protection and improvement of the health of the industrial population, has developed standards of practice through the years. Today, if the recommended standards of practice are observed, control of the hazards in the working environment may be reasonably assured.

The reduction and control of occupational hazards have not been effected by the efforts of any one specialty, but by the cooperative working relationship of the several professions making up the personnel of the industrial health services. The physician, the nurse, the engineer, and the chemist work together to discover and control hazardous conditions to which the worker is exposed.

Most toxic materials, presently manufactured or used in manufacture, are known and the permissible exposure limits determined. The industrial hygiene engineer, recognizing these hazards, recommends methods of control to limit worker exposure.

However, should a worker become ill through his own carelessness or because of a breakdown in the control measures, the industrial physician will recognize the diagnostic signs of poisoning, and refer the hazard to the engineer for correction.

Oral disease of occupational origin was recognized as early as the first century A.D., when a description was given of mercurial stomatitis.[1] Ramazzini[2] (1633-1714) advocated the inclusion of the patient's occupation in each medical history and pointed out a number of oral symptoms.

There are few books currently dealing with oral pathology and oral diagnosis that make reference to oral occupational diseases, but many of these references as well as the illustrations descriptive of the oral lesions have been handed down through the years. There is a great need for more work and more thought being given to this subject, for it appears that few physicians or dentists are sufficiently familiar with the oral manifestations of occupational disease to make these the basis of an early diagnosis of toxic exposures.

Schour and Sarnat[3] state that, "Basically every oral manifestation of occupational disease is a reaction following the exposure of the oral cavity or its component parts to external noxious agents which act either locally or systemically." "The various pathologic end results through their oral manifestations may be classified in the following order: (1) abrasion, (2) decalcification, (3) caries, (4) pigmentation of enamel and gingivae, (5) inflammation, (6) circulatory disturbances, (7) degeneration, and (8) neoplasm."

For diagnostic purposes the lesions may be the result of an occupational disease, local in character, which affects the tissues of the oral cavity alone such as tooth abrasion from dusts; tooth decalcification by acid fumes; caries caused by deposits of flour or sugar; tissue inflammation by the halogen group or ammonia; or neoplasms caused by tar, pitch or irritation by foreign bodies. On the other hand, the lesions may be the manifestation of an occupational disease that

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is systemic in character such as is found in the stomatitis of mercury; lead, bismuth, and benzene poisoning; and the bone degeneration in radium poisoning.

Abrasion of the teeth and oral mucous membrane is the direct action of substances of a *relative hardness* sufficient to cause injury to these tissues. The relative hardness of tooth structure, when that tissue is considered one of apatite composition, is in the 3-5 range according to Mohs's table.[4]

Industrial dusts with abrasive properties in a higher range of relative hardness than enamel and which may act upon the tooth structures are:

Silica—5-6, garnet—6.5-7.5, alundum (Al_2O_3) 9.0, silicon carbide (SiC_4—7-7.5, and rouge (hematite-Fe_2O_3) 5.5 to 6.5.[4]

There are many other substances of comparative hardness which no doubt have much to do with dental abrasion, but they are not mentioned in the literature.

Decalcification changes occurring in tooth structure are due to the action of organic and inorganic acids on the calciferous substances in the tooth. The principal structure of the tooth which is affected is the enamel, a composition of mineral salts consisting mainly of calcium and phosphorus. Dicalcium phosphate and tricalcium phosphate form the greatest bulk of the inorganic substance. Sulphuric, hydrochloric, nitric, phosphoric and hydrofluoric acids are inorganic acids which have direct action on the enamel and dentin of the teeth, while the organic acids commonly seen to exert decalcifying action are pyrogallic and acetic acids.

Caries is the loss of tooth structure due to the action of factors which cause either decalcification or degeneration of the organic constituents.

Caries occurs in teeth which are exposed to the direct or indirect action of certain factors, which may be determined by investigation of the worker's immediate environment. For example, if the teeth show a definite pattern of decalcification on the labial surface of the upper central incisors an acid may be suspected. Investigation of the environment may show atmospheric concentrations of acid mist above the permissible limits. Even though the individual may not show signs of physical change due to the acid exposure, the concentrations may be of sufficient strength to cause dissolution of the enamel.

Indirect action of acids upon the teeth may result from the fermentation of carbohydrates with the production of lactic acid from *Lactobacillus acidophilus* organisms. The retention in the mouth of food substances such as flour dusts, sugar dusts, and other carbohydrate material gives a nidus for bacterial action.

Pigmentation of the enamel is sometimes the result of the ingestion of fluorides in drinking water during early childhood when the teeth are being formed. Stains may also occur on the teeth of individuals who are exposed to the heavy metals; however, this occurrence is mitigated if good oral hygiene is practiced. In the manufacture of chromates, copper, and in the dyeing industry, the teeth may be colored by the substance manufactured. In chromate plants, chrome stains the teeth yellow; copper, green; and in the dyeing industry, the teeth may be stained any color that is used in the process. *The gingivae may become pigmented* as a result of the ingestion of minerals such as mercury, bismuth, lead and nickel. Deposits of the sulphides of these metals in the capillary bed of the gingival tissues give the appearance of a dark colored line. These phenomena are more commonly seen in mouths which have deposits of calculus under the free margin of the gum. Pigmentation of the oral mucous membrane and gingival tissues may also be seen in cases of systemic disease due to endocrine dysfunction and should not be confused with industrial manifestations.

Inflammation of the oral tissues may result from the deleterious action of many factors and may manifest itself in different ways. Examples of the way in which mercury may affect the tissues are well known. Complaints of sore gums and oral lesions, diagnosed as mercurial stomatitis, were reported recently as affecting workers in a battery manufacturing industry. This indicated that oral symptoms and signs of mercury exposure may manifest themselves before the systemic changes are evident. Inflammation of the oral mucosa, characterized by ulceration on the lips, buccal mucosa and floor of the mouth, can be caused by the action of chromate fumes.

Circulatory disturbances represented by alteration of the blood supply to the gingival tissues is a common oral manifestation. Gingival hemorrhage may be considered as an indication of the presence of local or systemic disease. Divers and caisson workers, who are subjected to changes in atmospheric pressure in their work, may show gingival bleeding especially if their mouths are in an unhygienic condition. Exposure to benzene may produce gingival bleeding, ulceration of the oral mucosa, and bone necrosis in the maxillae.

Degeneration of the hard and soft tissues of the oral cavity is found in cases of necrosis due to radium poisoning. Although cases of this type are not as prevalent as they were 20 years ago, because of better control of the environment, it is still important that the industrial dentist be aware of this manifestation.

The industrial implications of *oral neoplasms* must be stressed at this time when industry is using more and more of the products derived from coal tar and petroleum. Many cases of oral neoplasm are being found among industrial workers and the explanation of their presence is being investigated continually. It is known that certain of the coal tar products, such as tars, pitch, and cresols, have carcinogenic properties. Actinic rays may produce carcinoma of the lip in individuals who are exposed to the rays of the sun over long periods of time. Carcinoma of the oral cavity is found in cases in which the oral tissue is chronically irritated.

The etiologic agents which are responsible for oral occupational disease may be classified as chemical, physical, and bacterial, and so do not differ in classification nor in their mode of entry, from toxic substances causing any other type of occupational disease. They may be inhaled as gases, fumes or dust, ingested as solids or liquids, or absorbed directly through the skin or mucous membrane.

The prevention of oral disease of occupational origin follows the prevention methods developed by industrial hygiene for the control of industrial hazards and thus seeks to limit or eradicate the possibility of exposure.

Good oral hygiene is essential. It has been observed that poor oral hygiene offers greater opportunity for the oral tissues to be attacked by agents responsible for occupational disease. The lead line and bismuth line are rarely found in mouths that are in good hygienic condition.

Industrial dentistry, when developed as a specialty of dental practice and a part of the industrial health program, is concerned with the dental health of the worker as it affects or is affected by his work and his working environment.

The worker is an essential part of plant production and anything that reduces his efficiency is an economic loss to him and to the plant. If he is ill or injured and absent from the job, his income suffers and the plant loses, for another worker must be available to fill his place. If he is ill on the job, he is less efficient and a menace to the health and safety of his fellow workers. The emergency treatment of injuries and illness in the plant by the physician or nurse is considered a necessary part of the industrial health service. Oral pathosis, usually painful but rarely disabling in its initial stages, is very often the indication of a more serious systemic condition which should receive prompt attention. When the initial oral pathosis is local in character and treatment is delayed or neglected, the end result may become disabling.

Dental services in an industrial plant should correspond to those rendered by the medical services, and the findings and treatment of oral conditions should be closely integrated with those affecting the general health of the individual.

These services should be:

1. Pre-placement and periodic oral examination and diagnosis of all employees.
2. Emergency treatment, including the treatment of occupational injuries and disease.
3. Treatment and eradication of oral sepsis.
4. Adequate recording of findings and recommendations.
5. Education in dental health and follow-up of individuals to encourage complete and regular dental service.[5]

The pre-placement examination will serve as a baseline of the employee's dental health from which deviations can be recorded and evaluations made at the time of the periodic examination. It also serves as an educational procedure and employees can be advised of conditions needing correction and urged to have the corrections made.

The periodic examination permits a check of the oral health of the employees. These examinations should be frequent for employees working on operations where certain types of materials, such as mercury, phosphorus and acids, are being used in the processing. It also permits the dentist to follow up the individual's oral hygiene and check the amount of replacements the employee has had completed.

The diagnosis of oral conditions is extremely important. The industrial dentist should have knowledge beyond that which he has received in dental college and in the general practice of dentistry. He should be trained in the differential diagnosis of oral pathosis and be familiar with the materials used by the plant and the methods of processing employed. The gingivitis that he sees in the workers' mouths may be only the result of poor oral hygiene, but it may be the first indication of a toxic exposure. The possibility of a blood dyscrasia or a systemic disease such as diabetes or avitaminosis must also be considered.

Emergency treatment for the employees is the immediate contact with the individual who has been injured or is suffering from some oral disease of occupational origin. The close proximity of the plant dental office to the working environment permits employee treatment with a minimum amount of time loss from the job. Early treatment of injuries is important as a means of preventing post-accident complications. The emergency treatment of toothaches and other painful lesions makes it possible for the worker to perform his work more efficiently and minimizes the danger of accidents and material spoilage resulting from inattention. Fractures of the mandible or maxillae in occupational accidents require expert professional attention, but immediate emergency treatment is recommended.

Periodontal disease is responsible for a great number of emergency treatments. Changes in the adult gingival and periodontal tissues result in so-called pyorrhea, and complications arising from this disease are commonly aggravated by industrial or occupational exposures. These conditions must be given emergency treatment to keep the worker efficient and on the job.

The treatment and elimination of oral sepsis among an industrial population are important phases of preventive dental services. The extraction of an infected tooth, removal of gross deposits of salivary calculus, removal of foci that may be infective or have potential source of infection, and the elimination of other factors which may produce oral sepsis do much to increase the physical and mental efficiency of each employee. It is surprising how many individuals in this country do not know the feeling of a clean, normal, healthy mouth. This is especially true among industrial workers where acute and chronic oral infections are the rule rather than the exception.

The recording of adverse oral findings and the recommendations for their correction are essential in any well planned industrial dental program, since a decrease in the number of clinic visits for treatment, and an improvement in the general health of the working population makes possible the measuring of the successful operation of the program. Examination forms should be devised for the recording of all possible dental and oral defects and should be so arranged that the individual oral findings can be integrated with those of the medical service and thus bring all forces to bear for the improvement of the workers' general health.

Education in dental health should be an important part of each one of the services recommended for an industrial dental program. All of the educational techniques should be used, and others devised to fit the situation. Group talks, motion pictures, posters, pamphlets, and individual instruction are popular educational tools. Of these, the most important is individual instruction, for it has been found that workers are somewhat indifferent to general health instruction, but are keenly interested in their own individual health delinquencies. While the worker is in the chair during his oral examination, one of the best educational procedures is to place a mirror in his hand and show him the diseased conditions in his mouth. If it is possible to demonstrate oral pathosis by showing him his x-ray films which were recently taken, he has a stronger incentive to have the necessary corrections made.

The present conception of industrial dentistry is comparatively new, but, today, it stands ready to take its place among the professions that are engaged in industrial health services. These services are primarily concerned with the prevention and eradication of occupational accidents and disease. However, occupational diseases and accidents are responsible for a very small part of the ill health of industrial workers. Preventive medicine is now the watchword and preventive dentistry should be included in this category. The early discovery, and treatment or referral for treatment, of oral pathosis among the millions of gainfully employed persons in this country will result in the over-all improvement of not only the oral health of the nation, but the general health as well.

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The Relationships Between the Industrial Physician and the Community Practitioner

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SOME years ago I had occasion to observe the effect of the introduction of group insurance to the employees in a one-industry town. The reaction of the insurance agents was about as follows: "Here I have spent years building this agency, and now the company has taken over and insured them all." Actually, however, when each employee took home his insurance policy and discussed it with his family, both he and they realized how inadequate the amount would be in the event of death. As a result, they became insurance conscious, and the demand for personal life insurance was increased.

This illustration is given because we are confronted with a somewhat parallel situation when full-time industrial physicians are introduced to a community for the first time. The purpose of this short paper is to discuss the most frequent conditions under which the industrial physician and the community physician have common problems and share an interest. When the relationship between the two is properly developed, each will gain much from the other.

For the sake of brevity, the points of common interest are listed numerically. The first list describes the situations where the plant physician should be expected to initiate the referral to, or the communication with, the community practitioner.

1. As a result of pre-employment examinations the need for referral of patients to local physicians or other community practitioners is frequently encountered. Examples are cases for eye refraction, surgical correction of defects, such as markedly deviated septums, tonsillectomies, herniotomies, medical conditions, such as tuberculosis and heart conditions, and the numerous dental defects which require repair or extraction. This list could be expanded to an impressive length.

2. Next is referral to those specially trained for consultation and/or treatment of the involved or complicated industrial accident or occupational illness.

3. Employees are referred to the local practitioner for care of those industrial accident or occupational disease cases which, for any reason, are best or most conveniently cared for by him.

4. During the course of special physical examinations and during routine periodic physical examinations, many conditions are discovered which are in the same broad classification as those described as being revealed during the pre-employment examination.

5. Numerous conditions requiring referral are revealed to the plant physician when he renders to the employee, while on the job, reasonable first aid or offers advice for non-industrial injuries or illnesses. This is the activity which results in the greatest number of referrals, and presents the industrial physician the greatest opportunity for cooperation with the family physician. One reason for this is the established fact that the employee will report to the plant medical department with a complaint which he considers too minor in its present stage to justify a visit to his own physician. As a result, patients are referred while the condition is in an early state and will be amenable to prompt and early treatment. Many medical catastrophies have been averted by this practice.

6. In those industrial establishments which are equipped with clinical and x-ray laboratories, such findings may be made available to the family physician should it be his desire that these procedures be carried out and it is within the medical policy of the employer so to assist the family physician. (These qualifications are inserted deliberately, since a minority of plants have such facilities and the philosophy is not uniform in the relatively few who do.)

7. Occasionally, some employees will attract attention by their attitudes or behavior, or because of maladjustments at work, and observations will be made which will be useful to the practitioner who already has the patient under care.

8. Those reporting to work with a communicable disease will be referred to their physician and notification supplied to the local health officer.

9. When, in the course of a case-finding program, a diagnosis such as tuberculosis or syphilis is made, those who are discovered to be in need of treatment must be referred to community practitioners, or to the proper official or non-official agencies.

IT IS a poor road which doesn't run both ways. The corollaries of the above situations are those in which a community practitioner may initiate a referral to the industrial physician.

1. The community practitioner can be of great assistance by informing the plant physician immediately and directly of any condition suspected or believed to be of occupational origin. This is essential from the point of view of the medical welfare of the patient, as an early marshalling of the facts regarding the hazard to which the patient might have been exposed, etc., is necessary. This is quite obvious.

In regard to the financial status of the patient this practice varies from being extremely desirable to being mandatory. In some states the physician is required by law to report the condition in order that a patient's compensation rights are protected. In Tennessee, the patient must assume liability for reporting to the employer, and the statutory deadline is 30 days. There is a strong moral obligation on the part of the Tennessee doctors to advise a patient to report the situation to his employer, and the statement will be facilitated if the doctor will communicate with the industrial physician.

It is seldom a happy situation when an employee is denied compensation. And the situation becomes tragic when all concerned feel that the industry is responsible for a prolonged, serious, and expensive disability and the patient is left without assistance because of a failure to fulfill the technicalities of a compensation law. An interest on the part of the doctor in ascertaining if the patient has protected his own rights will prevent some of these distressing situations.

2. The community practitioner will assist all those involved in a case where a claim is being made if he will supply adequate medical reports in writing promptly. A patient may eventually receive payment in

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connection with a claim and still be disgruntled if such payment has been subject to unreasonable or unjustified delay. All insurance companies must have evidence on which to justify payment, and the physicians can contribute much to speedy settlements by keeping necessary reports up to date.

3. Where a family physician feels that some special request in regard to working conditions or hours of work or any other work factor is in order, a direct telephone communication discussing the request and the reason for it greatly enhances the possibility of such special dispensation being obtained for the patient. The vague "to whom it may concern" type of request is not so convincing as a clinical summary, either in writing or communicated by 'phone.

4. Statements justifying absenteeism, if they contain specific medical information, may be addressed to most plant physicians and the medical information remain confidential with the medical department. It might be well for the community physician to check with those industries to whom he will have occasion to address such notes. If such is not the case, we are personally inclined to endorse a statement that "John Doe has been ill and under my care" type of statement and justify its use. Where, however, sick-benefit or some other type of benefit is predicated upon a complete statement, the patient may request a revealing certificate. This subject deserves a more complete exploration than can be given here, but attention is called to it because it is very pertinent in any discussion of the relationships between the industrial physician and the community practitioner.

5. A discussion by 'phone with the industrial physician is invaluable in any case which appears to be potentially controversial or involved in misunderstandings. As a rule, the controversy is more apparent than real, and may be reconciled by discussion.

6. When a mental attitude is complicating bodily illness, the cure may depend entirely upon a common understanding between the family practitioner and the industrial physician. Apparent differences between the two may increase the patient's confusion and compound the already existing damage. This cooperation becomes even more essential where the psychic component is a major factor or if the illness is entirely psychic.

In conclusion, we might quote the old aphorism, "To know people is to like them." In any community where the relationships between the industrial physician and the community practitioner are in any way strained, we plead only for a better acquaintance with each other. If that is developed, we are certain that there will remain no unreconciled stresses.

Accident Proneness

DRS. COLT and BARTON, of the Colt's Patent Fire Arms plant, Hartford, have conducted an experiment with the Vectograph Target, on 120 "accident repeaters" in their factory—the term being defined, for purposes of this study, as a worker with an average of one or more accidents a month for at least nine months. Two control groups were obtained by examining all employees in three general machine departments—including 40 "repeaters." As a result of the study, it was concluded that there is some correlation between accident proneness and the following visual difficulties: suppression of simultaneous binocular vision, impaired stereopsis, exophorias in distant vision, and esophoria in near. These defects, if occurring in conjunction with poor scores on such psychological examinations as dexterity, would be cause for rejection of a worker from a hazardous job. The authors believe that even the experimental model of the Vectograph used in this study would be of great use to industry.

The Sight Saving Review, 15:2, 117, 1945.

The Physically Impaired Worker in Industry

ROBERT L. BROWN, M.D., and R. L. C. BUTSCH, Ph. D.

OWING to the urgent need for utilization of all available man power and woman power during World War II, industry employed many workers who had significant physical impairments. Not infrequently this was due to the fact that there was no other alternative if production was to keep pace with the ever-increasing needs of war. Now that sufficient time has elapsed to evaluate the contribution of the physically impaired, it is becoming apparent that physical impairments do not constitute as great a handicap as was anticipated. In fact, this and other studies of the subject indicate that the physically impaired worker is likely to be more stable than his unimpaired companions and that he is able to do a wide variety of jobs surprisingly well. Emphasis in this paper will be placed upon a formula for job analysis, a method for recording physical impairments by the utilization of tabulating cards, and on a survey of all employees with significant physical impairments employed during the year 1944 at a large aircraft plant engaged in the manufacturing of B-29 airplanes.

Before any industry decides to employ people who have physical impairments, a careful analysis of the various jobs in the industry is essential. Many job analysis forms have been proposed. Some of them are so detailed that they do not have great practical value when several hundred different jobs must be analyzed. In an effort to describe each job in terms of its most important physical requirements, the following outline was entered at the bottom of the job description sheets already in use in the plant. Opposite each heading the minimal requirements for the job are listed. This has proved to be a very simple and very useful formula and it is the impression of those who have used it that it more than makes up in utility what it may lack in detail.

Minimal Requirements			
Vision	_____	Standing	_____
Hearing	_____	Climbing	_____
Extremities	_____	Lifting	_____

Thus on one sheet the examining physician can have before him a description of the job in question, together with the minimal physical requirements.

The physical examination card is 8 x 10½ inches in size and is shown in Fig. 1. It creases in the center to make a folder for subsequent medical records which are kept on 8 in. x 5 in. forms. In addition to information regarding past medical history and present physical findings the physical examination form lists classification of the case and limitations to be imposed if physical impairments are present. It also has space for follow-up examinations and for a summary of injuries and illnesses.

A medical limitation order (Fig. 2) is made out in the pre-employment physical examination section whenever it is considered that the applicant has physical impairments which make it advisable to restrict him to the job assigned. A copy of this medical limitation order is sent to his supervisor, a copy to the safety department, another copy is kept in his personnel folder where it will be reviewed if he later wishes to transfer to another job.

All individuals having physical defects are coded on a special sheet from which a tabulating card is punched (see Fig. 3). From these tabulating cards information can be obtained regarding individuals with physi-

NAME PERM. NO.

HISTORY

- ☐ ARTHRITIS
- ☐ ASTHMA
- ☐ DIABETES
- ☐ EAR TROUBLE
- ☐ EYE TROUBLE
- ☐ EPILEPSY OR FITS
- ☐ FAINTING SPELLS
- ☐ HEADACHES
- ☐ HIGH BLOOD PRESSURE
- ☐ HEART TROUBLE
- ☐ KIDNEY DISEASE
- ☐ NERVOUSNESS
- ☐ PNEUMONIA
- ☐ HERNIA OR RUPTURE
- ☐ SKIN DISEASE
- ☐ SINUS TROUBLE
- ☐ RHEUMATISM
- ☐ STOMACH TROUBLE
- ☐ TUBERCULOSIS
- ☐ TUMORS
- ☐ TYPHOID
- ☐ BROKEN BONES
- ☐ BONE INFECTION
- ☐ OPERATIONS
- ☐ VENEREAL DISEASE
- ☐ OCCUPATIONAL ILLNESS OR INJURY
- ☐ OTHER ILLNESSES OR INJURIES
- ☐ VACCINATIONS:
  - ☐ SMALL POX DATE_____
  - ☐ TYPHOID DATE_____
- ☐ SCARS

DATE OF LAST PERIOD_____

PHYSICAL EXAMINATION √=NORMAL O=NONE

YR BIRTH	SEX	RACE	HEIGHT	WEIGHT	WT YR AGO	DRAFT CL	REASON	HEARING R	HEARING L	TEETH

VISION

WITHOUT GLASSES R20/	WITHOUT GLASSES L20/	DP	NP R	NP L	MB	COLOR
CORRECTED R20/	**CORRECTED L20/**	**DP**	**NP R**	**NP L**	**MB**	**COLOR**

THROAT	NECK	HEART	BP	LUNGS	ABDOMEN	GENITALIA	HERNIA

SPINE	UPPER EXTREMITIES	LOWER EXTREMITIES	VAR. VNS	SKIN	URINALYSIS ALB.	URINALYSIS SUGAR	URINALYSIS MICRO.	KAHN TEST	CHEST X-RAY

WAIVER: I, THE UNDERSIGNED, RECOGNIZE THE FACT THAT ON PHYSICAL EXAMINATION OF THIS DATE, THE FOLLOWING CONDITION WAS PRESENT:

I AGREE TO TAKE THE FOLLOWING STEPS TO CORRECT THIS CONDITION:_____

BECAUSE OF THE ABOVE FACTS, I AGREE TO RELIEVE BELL AIRCRAFT CORPORATION OF ANY AND ALL RESPONSIBILITY SHOULD INJURY, ILLNESS, OR DEATH RESULT FROM MY ABOVE STATED CONDITION.

IF THE KAHN TEST OF MY BLOOD IS POSITIVE, I AGREE TO TAKE TREATMENT AT MY OWN EXPENSE AND SUBMIT A REPORT FROM MY PHYSICIAN EACH MONTH TO THE MEDICAL DEPARTMENT OF BELL AIRCRAFT CORPORATION. I UNDERSTAND THAT FAILURE TO DO SO IS ADEQUATE CAUSE FOR DISMISSAL WITHOUT IN ANY WAY OBLIGATING THE BELL AIRCRAFT CORPORATION.

WITNESS DATE APPLICANT

RESTRICTION:

- ☐ NO CLIMBING
- ☐ NO HIGH CLIMBING
- ☐ NO HEAVY LIFTING
- ☐ NO CONSTANT STANDING
- ☐ NO EXCESSIVE NOISE
- ☐ NOT TO OPERATE MOBILE EQUIPMENT
- ☐ NOT TO OPERATE STATIONARY MACHINERY
- ☐ TO WEAR SAFETY GLASSES AT WORK
- ☐ TO WEAR TRUSS AT WORK
- ☐ TO WEAR ELASTIC STOCKING AT WORK

CLASSIFICATION:

0 = NO DEFECT
1 = MINOR DEFECT—NO RESTRICT.
2 = RESTRICTED TO ASSIGNED JOB
3 = UNSUITABLE FOR ASSIGNED JOB
4 = TEMPORARY REJECT.
☐ GLASSES ☐ TRUSS ☐ OTHER
= PERMANENT REJECT.

FOLLOW-UP:
REASON: DATE: FINDINGS:

REMARKS:

SIGNED

DATE	DEPT.	CODE	CLASSIFICATION	DATE	DEPT.	CODE	CLASSICIATION

PERIODIC PHYSICAL EXAMINATION

DATE	WEIGHT	VISION R20/	VISION L20/	DP	NP	MB	HEARING R	HEARING L	TEETH	HEART	BP	LUNGS	ABD.	HERNIA	UPPER EXTREMITIES	LOWER EXTREMITIES	SKIN	URINE	KAHN	CH X-R

DATE	WEIGHT	VISION R20/	VISION L20/	DP	NP	MB	HEARING R	HEARING L	TEETH	HEART	BP	LUNGS	ABD	HERNIA	UPPER EXTREMITIES	LOWER EXTREMITIES	SKIN	URINE	KAHN	CH X-R

DATE	WEIGHT	VISION R20/	VISION L20/	DP	NP	MB	HEARING R	HEARING L	TEETH	HEART	BP	LUNGS	ABD.	HERNIA	UPPER EXTREMITIES	LOWER EXTREMITIES	SKIN	URINE	KAHN	CH X-R

Fig. 1. Record Open

BELL AIRCRAFT CORP., GA. DIV
FORM BGS-22-R1

SUMMARY OF MEDICAL RECORD

INJURIES DATE	INJURIES DIAGNOSIS	INJURIES DATE	INJURIES DIAGNOSIS	ILLNESS DATE	ILLNESS DIAGNOSIS	ILLNESS DATE	ILLNESS DIAGNOSIS

Fig. 1. Record Folded

FORM BG8-25 R-1 1/45 5M BELL AIRCRAFT CORP.—GA. DIV.

MEDICAL WORK LIMITATION ORDER

NAME_____ SEX_____ RACE_____ VETERAN: ☐ YES ☐ NO

PROPOSED CLASSIFICATION:_____ DEPT._____ SHIFT_____

DISABILITY:_____

RESTRICTION:

☐ NO CLIMBING
☐ NO HIGH CLIMBING
☐ NO HEAVY LIFTING
☐ NO CONSTANT STANDING
☐ NO EXCESSIVE NOISE
☐ OTHER AS FOLLOWS:

☐ NOT TO OPERATE MOBILE EQUIPMENT
☐ NOT TO OPERATE STATIONARY MACHINERY
☐ TO WEAR SAFETY GLASSES AT WORK
☐ TO WEAR TRUSS AT WORK
☐ TO WEAR ELASTIC STOCKINGS AT WORK

THIS APPLICANT MAY WORK ON THE JOB CLASSIFICATION INDICATED. TRANSFERS TO OTHER JOBS MUST BE APPROVED BY THE MEDICAL DEPT.

DATE_____ MD

Fig. 2.

cal impairments at any time and counts and listings can be made by tabulating machines for follow-up study.

All persons hired at this plant during the year 1944 who had significant physical impairments were recently reviewed. The results of this study were grouped under several headings.

In the first place, it was found that 1,757 persons with signficant physical impairments were hired in 1944. These impairments were of sufficient magnitude so that the individual was restricted to the specific job for which he was considered physically competent. Transfer to any other job required approval of the medical department. During the same period a total of 27,507 persons were hired at this plant, and it is with this total group of over 27,000 that the impaired group is compared in the following tables.

The percentage that terminated during 1944 or before February 15, 1945, was first determined. This gives an index of the stability of each group. It was found that terminations amounted to 58% of the entire group as contrasted with only 38% of the impaired group. The reasons for separation were then studied. It was found that a smaller percentage of the impaired people were discharged or layed off, a smaller percentage were terminated because of absenteeism, and a smaller percentage stopped work because of living conditions, domestic conditions, working con-

BELL AIRCRAFT CORP.—GA. DIV.

PHYSICAL IMPAIRMENT CODING SHEET

(Initials) 1-16 (Surname)	Permanent No. (17-21)	Birth Year (22-23)	Sex (24)	Color (25)
Dept. (26-31)	Job Code (32-35)	Mo. & Yr. of Hire (36-39)		Manning Code (40)

Vision (41)
0 20/20 both eyes
1 20/33 both eyes
2 20/33 - 20/45
3 20/33 - 20/60
4 20/33 one eye—less than 20/60 in other
5 20/45 20/60
6 20/45 one eye—less than 20/60 in other
7 Less than 20/45 in both
8 Blind, one eye
9 Blind, both eyes

Near Point (42)
0 Normal
1 Defective one eye
2 Defective both eyes

Color Vision (43)
0 Normal
1 Color Blind

Depth Perception (44)
0 Normal
1 No depth perception

Hearing (45)
0 Normal
1 Impaired
2 Total Deafness
3 Deaf Mure

	(46) *Upper Extremities*	*Lower Extremities* (47)
0	No Impairment	0
1	Slight, one	1
2	Slight, both	2
3	Marked, one	3
4	Slight one, Marked one	4
5	Marked, both	5
6	Arm or leg amputation without prosthesis	6
7	One artificial limb	7
8	Two artificial limbs	8

In the following items: 0—Normal 1—Condition Present

	48. Back deformity or disability		55. Hypertension		62. Psychoneurosis
	49. Hernia		56. Valvular or myocardial heart dis.		63. Marked nervousness
	50. Varicose Veins		57. Cardiac rate or rhythm disturb.		64. Epilepsy
	51. Diabetes		58. Peptic Ulcer		65. Marked Dental Caries
	52. Nephritis		59. Skin Disease		66. Neoplastic Disease
	53. Arrested T. B.		60. Syphilis		67. Arthritis
	54. Asthma		61. Severe Sinusitis		68. Miscellaneous

Weight (69)
0 Normal
1 Under
2 Over

(70)
0 No defects
1 Minor defect, but does not disqualify for work anywhere in plant
2 Significant defect. Can do present job, but recheck for transfer
3 Not qualified for present job, but might be placed elsewhere
4 Temporary reject
5 Permanent reject

Limitations ( ) (71-72)
(Sum of Points)
1 No ladder climbing
2 No heavy lifting
4 No operating moving machinery
8 No constant standing
16 Day shift; no overtime
32 Nothing which aggravates nervous state

Fig. 3.

TABLE I.

	Hired Terminated		Reason for Termination									
			Health	Absenteeism	Working Cond.	Domestic Cond.	Return to Other Jobs	Living Cond.	Armed Forces	Discharge	Lay-Off	Other
Total number of persons hired in 1944.	27,507	57.8%	9.4%	8.8%	11.2%	11.4%	3.8%	1.6%	4.2%	2.7%	2.1%	2.6%
Total number of persons with significant physical impairments hired in 1944..	1,757	38.1%	9.2%	6.1%	7.2%	4.5%	3.5%	1.4%	1.0%	1.9%	1.0%	2.3%

ditions, return to other jobs; most surprising of all, a smaller percentage stopped work because of health. In the case of every one of 10 reasons for leaving the per cent of the impaired group who terminated was lower than the per cent of the total group employed in 1944. These comparisons of the percentages of termination of the physically impaired group and the total group are shown in Table I.

In Table II there are listed the reasons for leaving for each of the major types of physical impairment encountered. Of the visual impairments studied, the highest termination rates occurred in those individuals who had vision of less than 20/45 in both eyes but were not blind in either eye and in those who had defective near point vision in both eyes. There was, of course, some overlapping in these two groups but a great many more people were found to have defective near point vision than to have vision of less than 20/45. The percentage that terminated in these groups was 54.7 which is considerably higher than 38% which was the average termination percentage for people with all types of impairments. As far as stability is concerned, the totally blind stayed on the job better than those with other visual defects and the next most stable were those who were blind in one eye but had vision of 20/30 or better in the other.

The physical impairments with the lowest termination rates were diabetes, nephritis (chronic without edema), total deafness, total blindness, varicose veins, peptic ulcer, hypertension (160-200 systolic, 90-100 diastolic). The highest rates occurred in arm amputation without prosthesis (four of five hired were terminated but none because of health); vision less than 20/45 in both eyes but not blind in either; and defective near point vision in both eyes.

The groups that gave health as the reason for termination in the highest percentage of cases were: Marked impairment of both upper extremities, one artificial leg, valvular heart disease, and back deformity or disability. It is our belief as a result of this study that extra attention to proper placement should be given persons with these impairments.

Individuals with arrested tuberculosis stayed on the job better than the average impaired person and very considerably better than the average for all persons hired in 1944. The percentage terminating because of health was only slightly higher than the average for the total group (11.1% vs. 9.4%).

We do not have statistical data to show the efficiency and productivity of physically impaired workers as compared with non-impaired. However, our impression is that their efficiency and productivity is on a par with the unimpaired if they are properly placed. This means that a man with an artificial leg must be placed where he works with his head or hands and where the loss of a leg is, therefore, of small significance in so far as ability to do the job in question is concerned. An example is D.B., male, age 29, who sustained a compound fracture of his left lower leg in the drive on Florence. Being a squad leader he was first to cross a bridge and was hit by a sniper guarding the bridge. His artificial leg was fitted four months after this injury, and he was discharged from Lawson General Hospital six months after his injury. He

TABLE II.

Impairment	Hired Terminated		Reason for Termination									
			Health	Absenteeism	Working Cond.	Domestic Cond.	Return to Other Jobs	Living Cond.	Armed Forces	Discharge	Lay Off	Other
Total Blindness	8	25%	12.5%	0	0	0	0	12.5%	0	0	0	0
Blind in one eye vision 20/30 or better in other	229	39.3%	7	6.1%	9.2%	4.4%	4.4%	1.7%	.4%	3.1%	.9%	2.2%
Vision less than 20/45 in both eyes not blind in either	42	54.7%	11.9%	9.5%	11.9%	11.9%	4.8%	0	0	0	0	4.8%
Vision 20/60 or less in one eye 20/45 in other	83	46.9%	6%	4.8%	9.6%	7.2%	6%	2.4%	1.2%	6%	0	3.6%
Vision 20/60 or less in one eye 20/30 or better in other	206	44.2%	8.3%	6.3%	10.7%	6.8%	4.4%	1%	1.9%	1.5%	1%	2.4%
Defective near point vision in both eyes	190	54.7%	11.1%	7.9%	10.5%	7.9%	4.2%	2.1%	.5%	3.2%	1.6%	5.8%
Total Deafness	13	23.1%	7.7%	0	7.7%	7.7%	0	0	0	0	0	0
Impaired Hearing	46	45.7%	10.9%	6.5%	10.9%	2.2%	8.7%	0	0	0	0	6.5%
Deaf Mute	49	40.8%	6.1%	0	8.2%	6.1%	0	2%	2%	6.1%	0	0
Hernia	264	29.9%	7.6%	6.8%	4.5%	2.3%	1.5%	1.1%	.8%	1.9%	1.9%	1.5%
Marked Impairment Both Upper Extremities	9	44.4%	22.2%	11.1%	0	0	0	0	0	0	11.1%	0
Marked Impairment of One Upper Extremity	110	28.2%	7.3%	1.8%	8.2%	.9%	.9%	.9%	1.8%	1.8%	0	5.5%
Arm Amputation without prosthesis	5	80%	0	40%	0	0	0	0	0	20%	0	20%
Artificial Arm	1	0	0	0	0	0	0	0	0	0	0	0
Marked Impairment both lower extremities	21	28.6%	4.8%	9.5%	0	4.8%	4.8%	0	4.8%	0	0	0
Marked impairment of one lower extremity	147	40.8%	9.5%	7.5%	8.8%	3.4%	4.8%	.7%	1.4%	.7%	2%	2%
Leg Amputation without prosthesis	2	50%	0	0	0	0	0	50%	0	0	0	0
One artificial leg	11	45.5%	18.2%	18.2%	9.1%	0	0	0	0	0	0	0
Back deformity or disability	75	26.7%	13.3%	4%	4%	1.3%	1.3%	1.3%	0	0	1.3%	0
Hypertension	130	21.5%	5.4%	4.6%	.8%	3.1%	1.5%	.8%	0	1.5%	1.5%	1.5%
Valvular Heart Disease	94	42.5%	15.9%	6.4%	4.3%	7.4%	3.2%	0	1.1%	1.1%	1.1%	2.1%
Peptic Ulcer	80	11.2%	2.5%	2.5%	3.7%	0	0	2.5%	0	0	0	0
Varicose Veins	64	18.8%	6.3%	1.6%	9.4%	0	0	1.6%	0	0	0	0
Arthritis	34	32.4%	2.9%	2.9%	11.8%	5.9%	0	2.9%	0	0	5.9%	0
Nephritis	26	23.1%	0	15.4%	0	0	0	0	3.8%	0	0	3.8%
Arrested Tuberculosis	18	27.8%	11.1%	11.1%	0	0	5.6%	0	0	0	0	0
Diabetes	9	11%	11%	0	0	0	0	0	0	0	0	0

took a course in electrical bench work at Lawson General before being discharged. After spending two weeks at home he came to work approximately 6½ months after he was injured. He does electrical bench work which requires use of his head and hands but not of his legs. He can walk without a cane and states that people do not know he has an artificial leg unless he tells them. He seems well satisfied and adjusted, and is doing a good job. Careful placement is the key to the successful utilization of the physically impaired worker.

SUMMARY: (1) A simple workable formula for the analysis of the physical requirements of jobs has been presented.

2. Our method of examining, limiting, and coding physically impaired workers has been described.

3. The results of a study of 1,757 physically impaired individuals hired at a large aircraft plant during the year 1944 have been presented.

4. Our conclusion is that with proper placement the physically impaired worker is an asset and not a liability in industry.

Industrial Medical Service

—For the Smaller Plants—

INDUSTRIAL medicine in the postwar decade faces this question: Can complete industrial medical service, now benefiting only the largest corporations, be distributed to serve industry generally, especially small plants? In no other field, according to the Council on Industrial Health of the American Medical Association, are there as great opportunities for the improvement of medical standards and the betterment of medical service distribution.

The war brought forcibly home to industry the fact that its most important resource is productive manpower. Faced with acute manpower difficulties, including the use of physically substandard workers and women, industry was compelled as never before to seek medical guidance.

Plans to improve medical care in industry have been developing for many years, but progress was slow until expedited by the war emergency. Under war-time pressure industry sponsored the development of comprehensive industrial medical services, such as the Permanente Foundation which serves the Kaiser Shipyards. These comprehensive programs set the standards of industrial medicine, which the profession can now extend to all industry.

Improved distribution of medical service is particularly needed for smaller plants which have been financially unable to secure the medical services they require.

Further, as the Permanente Foundation and others have demonstrated, medicine must be completely integrated with the industry it serves. Physicians specializing in industrial practice are now recognized by the Council on Industrial Health and other professional groups as essential to the success of the industrial program.

One of the constructive thinkers on the problem of improving the distribution of industrial medicine is DR. F. E. POOLE, of Glendale, California, Medical Director of Lockheed Aircraft Corporation, and a member of the Board of Directors of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS. Lockheed's Medical Department was organized by DR. POOLE, who has headed it since its inception, and the employee classification system used by that corporation for placement of physically substandard workers was developed by him. This system, with certain modifications, has been widely adopted by industries throughout the United States.

Through his Lockheed activities, as a member of the Airline Medical Directors Association, and a consulting member of numerous special medical committees, DR. POOLE had opportunity to observe closely the disparity in distribution of medical service between large corporations and smaller industrial organizations. He was also able to analyze the benefits resulting from group practice, and reached the conviction that group practice by physicians specializing in industrial medicine offered the greatest possibility for efficient, industry-wide distribution of medical care.

He has now formed such an industrial medical group, known as F. E. POOLE, M.D., AND ASSOCIATES, to serve industries in the growing industrial San Fernando Valley area. The staff of the ASSOCIATES includes six physicians with extensive industrial experience, who soon will be housed in a new modern $150,000 Medical Center, designed specifically for the treatment of industrial cases, and located in Glendale, California.

The basic aim of the ASSOCIATES is to develop a comprehensive industrial medical plan, designed specifically to make possible the distribution of medical care to the variety of industries and plants of various sizes, ranging from the smallest (with as few as 10 employees) to large plants employing many thousands.

The ASSOCIATES' program exceeds in scope that of the industrial emergency hospital, covering all aspects of industrial medicine, including:

1. *Emergency Medical and Surgical Treatment.* Medical and surgical treatment including emergency first aid, is necessary for all plants. Employees injured or made ill at work must be provided with adequate care. Emergency treatment for non-occupational ailments should be provided to help workers remain on the job.

If feasible, emergency treatment should begin in the plant where the worker is employed, the in-plant first aid station being the first step in a program of continuous treatment which continues until the worker is cured. In addition to providing immediate treatment, the in-plant first aid station prevents lost time by making it unnecessary for the worker to leave his plant to obtain treatment.

An important phase of treatment is the restoration of the worker to employable status at the earliest possible moment. Many studies conducted on this subject have proved that early restoration not only minimizes lost time, but improves the worker's chance for rehabilitation and minimizes potential disability. The physician specializing in industrial medicine and familiar with the requirements of various jobs in the plants he serves, is most favorably situated to effect rapid restoration of the worker to the job.

2. *Industrial Hygiene and Toxicology.* Technological advances in manufacturing processes are complicating the problem of adequate industrial hygiene and toxicology. Many new materials having superior manufacturing useability are highly toxic. This is especially true of solvents, cleaners, and compounds such as plastics.

Adequate protection from industrial hazards is provided by: (a) Elimination, where possible, of hazardous processes and materials; (b) designing of adequate safeguards, such as proper ventilators, and the provision of adequate worker protective devices when elimination of hazards is not possible; and (c) periodic

hazard evaluation, both for processes and workers. This phase of the program requires regular testing of hazardous processes to assure their control, and periodic physical examination of employees exposed to specific hazards.

3. *Personnel Physical Examination.* Complete evaluation of the industrial work force requires four types of physical examination: (a) Pre-employment; (b) management or key personnel; (c) annual recheck or health audit; and (d) specialized occupational examinations.

The pre-employment screening physical examination has been routinely adopted by many industries which have found it of value in the proper placement of workers and an invaluable protection in cases of alleged occupational injury. Such an examination, when coupled with a system of classification and a placement program, is essential for the proper use of physically substandard or handicapped workers and for correct placement of returning war veterans.

The conservation of management manpower is an increasingly important consideration to industry which even now is faced with drastic shortages of trained, experienced key persons. The annual management examination increases the efficiency of executives and prolongs their useful life by freeing them from concern as to their physical well-being. Disease and physical breakdown are detected at their onset and preventive measures may be taken to avoid disability. Executives found to be in good physical condition can work more efficiently when reassured as to their physical well-being.

The importance of productive manpower, which means healthy, satisfied workers, was impressed on industry, as was mentioned previously, by the war manpower crisis. Industries which felt the effects of deteriorating manpower are now keenly aware of the necessity for conserving this most important resource. Annual physical examinations, or health audits, for all employees have been proved to effect this desirable aim. The Metropolftan Life Insurance Company has shown by studies made of its employees that the employable life of workers may be extended more than 24% by annual physical examination.

While not as extensive as the management examination, the annual health audit examination is adequate to detect the onset of disease and disability.

Occupational requirements or hazards dictate the necessity for special examinations. Employees whose work requires special physical skill or ability, such as airline pilots, locomotive engineers, and bus drivers, must be given annual physical examinations to determine their ability to perform their functions with safety. Workers exposed to occupational hazards must be examined to disclose the onset of disease or toxic poisoning in order that they may be removed from danger before disability results. The nature of the examination in these cases is dependent upon the physical capacities necessary or the hazards to which the worker is exposed.

4. *Research and Consultation.* Problems of a medical nature confront industry in ever greater numbers as the result of technological progress and the advanced industrial era. Many manufacturers of complicated machines, such as airplanes, rely on the physician to determine safe limits of physical capacity required for proper operation. Problems of crew and passenger comfort, including ventilation, sanitation, lighting, and seating, also require the specialized knowledge of the physician.

His counsel has been found of great value in the designing of new products and is essential in the formulation and preparation of chemicals and food products, where the physician must establish standards of sanitation and control for product purity. These are but a few of the situations in which industry now consults with the industrial physician and relies on his research.

The medical needs of industrial plants are as varied as their products and sizes. Determination of service required for a specific plant necessitates a careful study of the plant by physicians whose experience qualifies them to judge the hazards of various occupations, preventive and control measures necessary, and the quantity of medical care practicable. This survey is the basis for development of individualized service and is used by the ASSOCIATES in the preparation of medical service distribution plans.

Experience in providing necessary industrial medical care indicates that industrial units may be divided into four groups generally requiring these services:

1. *Large Plants.* Plants employing 2000 or more workers are classified as large, and warrant the full-time services of a physician and nurses. Treatment, including minor surgery, is given in the plant first aid station and cases beyond the capacity of this station are referred to the Medical Center or hospital for care.

2. *Medium Plants.* Those plants which employ more than 1000 workers may be classed as of medium size. With this number of employees, the plant first aid station is indispensable. It may be satisfactorily operated, however, by a full-time nurse with the part-time services of a physician for supervision of the nurse and treatment of cases beyond her capacity. The usual practice is to schedule the physician's visit to the plant on a regular basis, at which time he treats all cases which the nurse has for his attention.

3. *Intermediate Plants.* Employment of 500 to 1000 workers classifies a plant as intermediate. Such plants generally do not require the full-time services of more than one nurse; where the nature of operations is essentially non-hazardous, part-time nursing service is often sufficient. Part-time service of a physician for nursing supervision and treatment of serious injuries is essential, but greater reliance is placed on the ASSOCIATES' Medical Center since the average inter-

mediate plant is unable to afford an elaborately equipped first aid station. When part time nursing service is furnished, the usual arrangement is for the nurse to make scheduled visits daily, the length of the visiting time depending on the number of cases to be treated. The physician also visits the plant regularly, although daily visits may be unnecessary.

4. *Small Plants.* Plants employing from 10 to 500 workers, which constitute the majority of American industrial units, are, unfortunately, those with the least medical protection. For the little shop, store, or plant of 10 or so workers, any medical service other than emergency care for the injured has been prohibitively expensive. These plants, which most need improved distribution of medical service, are the least able to afford such a program.

The cost factor has been overcome in the plan developed by DR. POOLE and his ASSOCIATES by designing their medical service to provide protection necessary with minimum overhead expense. Under this plan, emergency treatment for the injured worker is provided by means of a first aid kit located in the plant and under the control of one or more employees specially trained in first aid techniques by the ASSOCIATES. In case of accident these employees take necessary lifesaving measures and bring the employee to the Medical Center for professional attention. Minor injuries are treated from the first aid kit. The nurse visits the plant as frequently as necessary to examine all cases and give continuing treatment required.

The maintenance of the first aid kit is extremely important, as a survey of small plant medical facilities by the Division of Industrial Hygiene, New York State Department of Labor, revealed that few kits in small plants were maintained in proper order, and there was constant danger from contamination of materials through re-use. The first aid kits installed by the ASSOCIATES are maintained by the ASSOCIATES' nursing service. The nurse visits each plant periodically to inspect the kit, replenishing supplies as needed and assuring sanitary control.

The industrial hygiene and toxicology, personnel examination, and research and consultative services required by various plants must be determined individually from the plant survey. Requirements for industrial hygiene and toxicology vary widely in plants of similar size due to the nature of the business, the type of products manufactured or used, and the physical layout of the plant itself. The inclusion of the examination program and research and consultative services depends on the policies of the plant management; where management is progressive and forward-thinking, such programs are usually desired.

Questionnaire for Industrial Nurses

MOST nurses and most industries are interested in salaries, vacations and the like, but how much salary, how long a vacation and similar questions are frequently asked by nurses setting up nursing service. To answer these questions intelligently the AMERICAN ASSOCIATION OF INDUSTRIAL NURSES is conducting a search for information which will serve as a guide in compiling recommendations for acceptable personnel practices. It is the desire of the group that every industrial firm with nursing service should be represented in this national survey. In every state and the District of Columbia a committee chairman has been appointed to see that all industrial nurses have an opportunity to add their experiences to the nation-wide pool of information. These questionnaires are not to be signed by the nurses or identified with the firm by which they are employed.

Industrial Hygiene News Letter, February, 1946.

Industry and Medicine

—What Each Expects of the Other—

HOWARD STRONG,
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IN DEALING with this subject I am going to exercise my discretion and change it to WHAT INDUSTRY SHOULD EXPECT OF MEDICINE. For the expectations of a large part of industry are, I fear, far below what the medical profession has to offer and what it is prepared to deliver.

Most of the largest industries do have a fairly adequate understanding of what the medical profession can do for them, and their expectations measure up to your facilities. Practically all of the largest industries in the country have established health service in their plants, with physicians, nurses and other personnel. These services have demonstrated their value both from the standpoint of human welfare and of dollar-and-cents return. Some thousands of other industries are providing this service, but many more thousands have little or no health provision for their employees and have an utterly inadequate appreciation of what an organized health service can do for them.

Health service in industry ranges from that of one of the largest, with almost a thousand physicians, nurses, sanitary engineers and other professional and technical people on its health staff, all the way down to the plant manager who has the telephone number of some doctor noted on his blotter, and who calls that physician when some emergency arises. And perhaps he thinks that this is medical service!

There are still others—small industrial employers—who have some understanding of what health service in the plant may mean, but who feel that because of the size of their plants, they can't afford this service. These industries must be shown how such a service can be provided even for them.

The industrial manager is coming more and more to recognize his moral responsibility for the welfare, the health and the happiness of those men and women whose working life is largely under his control. And medicine has much to contribute in this field. This conception of management's responsibility must be broadened and extended. But in addition to this human responsibility, the industrial manager should understand the value of these services in reducing absenteeism, increasing efficiency of the employee on the job, and the increased production which can and does result. I think it may be assumed that industry seeks to keep as many men working at as many machines as many days as possible. And industry must learn that you, the medical profession, can help attain that economic objective.

And management must understand that a sound health program intelligently administered is one of the best aids to sound employer-employee relations in the plant and to satisfactory inter-employee relationships.

Plants which have an organized health service, almost with no exception, have discovered that adequate health service means lessened compensation costs. In many instances, the entire cost of the service is paid for through this reduced liability.

Most important, industry must become convinced that the prevention of conditions which lead to illness is an essential element in maintaining satisfactory working conditions and full productivity, and that

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prevention is cheaper than correction. Industry must have a more adequate understanding of the potentialities of your contribution in this field.

The major purpose of the Health Advisory Council of the U. S. Chamber of Commerce, in the industrial field, is to give to industry an understanding of the contribution which the medical profession can make to management and labor, and to create in industry a demand for these services which you are prepared to render. The industrial manager learned long since that it is a profitable investment to provide a man or a crew of men whose job it is to lubricate, to adjust and to repair the machines in his plant, that they may be kept at the highest peak of productive capacity. We are seeking to convince industry that it is an equally good investment for both management and labor, to provide a staff whose job it is to adjust and repair and lubricate the *human* machines upon which the operation of the steel machines depends.

Now what *should* industry expect of the industrial physician? First, of course, that he be well trained in medicine, but more, that he shall recognize industrial medicine as a specialty which requires special training. Industry has a right to expect that the industrial physician shall prepare himself for this field of work, if possible through attendance upon special courses in industrial health given by many medical colleges; through study, through contacts with other industrial physicians; through attendance at meetings of this specialized profession, and through experience. Many physicians have gone into industry without this training and have ultimately made an outstanding contribution, but that contribution has become adequate only through specialized study in one form or another.

The industrial physician will recognize that there are two approaches to his job. One, the plant environment; the other, the employee. The first requires that the physician shall become thoroughly familiar with the plant—its "housekeeping" facilities and its hazards. He cannot gain this familiarity by dropping in occasionally for a few minutes to see some employee who needs his attention. He must study and become thoroughly familiar with the facilities of the plant, its lighting, ventilation, sanitation, temperature, humidity, cleanliness and other factors that go to make up a wholesome environment. And he must be familiar with the hazards of the plant—its possible toxic substances, accident hazards, fumes, dusts, air content and plant processes which may produce risks of one kind or another for the employee.

He must have some understanding, though not in detail, of mechanical processes in order that he may intelligently assist the plant manager or foremen in putting the right man in the right job. The work of the industrial physician can be of invaluable service in discovering the physical and mental capacities of the worker, and the physical and mental demands of jobs in the plant. This means that the industrial physician cannot be just *any* doctor; he must be the *plant* physician; that is, the physician of that *particular* plant with knowledge of its needs, hazards and possibilities. The industrial physician must not merely have that knowledge, but industry should expect him to assume the responsibility for putting that knowledge into effect.

And what of the relationship of the industrial physician to the employee? Industry should recognize that while the physician usually works for management and his salary is paid by management, his professional responsibility is primarily to the employee and his relationship with the employee should be the same confidential relationship which exists between the private practitioner and his patient. It is essential that, so far as possible, he shall establish these same close, cordial relationships. There must be a delicacy of human understanding which will engender confidence on the part of the worker. The extent to which the plant physician becomes a "father confessor" to the people in the plant is a fair measure of his ability to influence and serve them. So the industrial physician must be essentially a social being, not only in his individual relationship with the workers, but in his understanding of the social implications of his own job, of every job in the plant, and of the whole complicated pattern of human relationships in the plant.

When a plant health service is instituted, employees are frequently suspicious. They fear that management is trying to put something over; that it may be planning to use the service for its own ends; perhaps to get rid of trouble-makers or of men whose condition may increase their compensation risks. Because of this sudden suspicion, some employee groups have been slow to support industrial health service, and sometimes, though I think not often, with reason. It is only as the integrity of the physicians' position is completely demonstrated that the fear can be removed. The plant physician must not permit his services to be used in the interest of management against employees, or in the interest of the employee against management. Adherence to this principle and the maintenance of a sound relationship to each group can go far toward establishing satisfactory relationships between the two groups.

Though many industries, and some physicians, will not agree, I am convinced that an industrial health program can best be worked out on a cooperative basis with both management and labor participating. Many industries are finding that, instead of imposing a health program from above, it is wise to work out the program with the cooperation and approval of labor. I believe that such a basis of operation will produce the most satisfactory results for both groups.

It is not for me, as a layman, to discuss in detail the professional responsibilities of the medical man in industry. The competent industrial physician will recognize the primary significance of preplacement and periodic health examinations for the early detection of illness and physical and mental maladjustments, and for determination of the action which must be taken to correct conditions which are disclosed. He will provide an adequate follow-up system to see that these measures are taken, and he will endeavor to convince both management and labor of their essential value.

The industrial physician, if he is to do his job adequately, will have some understanding of mental health and will be equipped to discover at least tentatively, the existence of mental and emotional conditions which may cause or aggravate physical disturbances. He will know something of what to do about it and when necessary, where to send the patient for proper treatment.

Management has a right to expect that the physician in industry shall have a knowledge of preventive medicine and all that this implies, for a major part of the industrial physician's job is the *prevention* of environmental and personal conditions which may result in illness. The industrial physician should have a compelling interest in positive health and not simply in the correction of disabilities.

And again, and most important, management should expect a medical man in industry to be a health educator, for this is a major part of the preventive pro-

gram. The doctor will do well to remember that his very title derives from the Latin word "to teach." The physician's success in this field will depend to a considerable extent on the personal relationships which he is able to establish. Individual contacts offer the first and perhaps the best opportunity for health education—for giving the employee some conception of what healthful habits and wholesome living are. This personal contact can well be supplemented with other procedures—demonstrations, exhibits, films, pamphlets, bulletins, and other means to an intelligent understanding of general health, personal hygiene, sanitation and safety. Industry can properly look to the industrial physician to initiate and aid in these educational processes.

The physician in industry should be depended upon to maintain sound relationships with practicing physicians and public health officials. While there are many exceptions, the industrial physician usually does not practice curative medicine in the plant, except for minor ailments and in case of emergency. After the discovery of the need and the application of necessary emergency measures, the employee is referred to his family physician for treatment. This procedure must be clearly understood in the beginning. The physician must not overstep the line. Management has a right to expect him to observe this cooperative relationship but, at the same time, to follow through with assurance that adequate treatment has been secured.

I believe that small industry as a whole has a right to expect the industrial medical profession to help in working out adequate and effective cooperative plans under which small plants which cannot afford to provide medical, nursing and other technical staff and clinical facilities may combine with other plants in the joint provision of such facilities. After all, from the standpoint of health in industry, this is the major problem, for 90% of the plants in the United States have less than 500 employees, and 71% of the workers in the country work in plants of less than 500. A number of plans of this character are in successful operation, but if the great majority of our industrial workers are to be provided with health service, the profession must aid in developing techniques for a satisfactory operation applicable to all types of small plants, and must assist in securing its acceptance.

What does or should industry expect of the profession as a whole? If we examine the statistics I think we must reach the conclusion that an industrial health program, if it is to deal successfully with causes of absenteeism from illness, must soon resolve itself into a community health program, for estimates indicate that 92% of absenteeism due to illness arises from causes *outside* the plant. This means that industry, if it is to assure maximum health conditions for its employees, must extend its interest to the community health program. It can well look to the medical profession to encourage and participate in community health activities, both official and voluntary, particularly in the development of case finding and preventive measures and community health education. The counsel of the medical profession is essential in all of these activities, and it must be depended upon to stimulate, guide, and, when necessary, to assist in correcting public action. Only through the cooperation of these three groups—the medical profession, official and voluntary health agencies, and civilians—can the major causes of absenteeism from illness be reduced.

Industry — both management and labor — has the right to expect the medical profession to take a leading part in finding and applying a formula which will extend adequate medical care to all of the people. The best method of bringing about this result is of course highly controversial. Assisting in this solution of this problem is a responsibility of the medical profession which it cannot avoid.

Of course not only industry, but all of us, look to medicine to continue and intensify the program of research in preventive and curative medicine. The stimulus which the war has given to the research program should not be allowed to lag. Not only in the general medical field but in industrial medicine, new discoveries have been made and new techniques have been developed. We have not yet fully determined how this research shall be carried forward. Through educational institutions, hospitals, private research agencies, government—perhaps all of them. But whatever the procedure, we must move steadily toward that distant and perhaps Utopian goal which Dr. George W. Crille set for us when he said, "The time will come when the *treatment* of disease will be considered a confession of failure."

NOW MAY I say just a word about what medicine should expect of industry. First, medicine has a right to expect industry to gain a more complete understanding of what the physician has to offer in bringing about better human relations, decreased costs, happier and more efficient workers and increased production, with dollars added both to the company treasury and to the pay envelope.

The industrial physician should expect management to give him his rightful place in the plant, not as a hanger-on, a fifth wheel, a supplement to the personnel department, but as one of the chief executives, perhaps a vice-president, with the full support of management for the physician's responsibility for the health of the plant and the physical and mental welfare of the worker. The physician must have assurance that serious consideration is given to his recommendations with reference to plant and personnel. Only so can he best serve worker and management.

Certainly the industrial physician should expect management to respect the integrity of the physician-patient relationship and the confidential character of his records. He must have assurance that management will not use or tolerate the use of confidential records for dealing with supposedly troublesome employees, or for any purpose other than to serve the health, welfare and productive capacity of the worker.

And of course the industrial physician must be given enough time and salary to do his job and to do it well. I believe that industry is in a receptive mood to be shown the human and the dollar value of industrial health service. The Health Advisory Council of the National Chamber, and many other agencies, are plowing the furrow. We need the help of you, the medical profession, in planting the seed and bringing in the crop.

Research on Cause of Colds

DR. R. E. DYER, director of the U. S. Public Health Service National Institute of Health, who will supervise a prolonged research program to find the cause of the common cold, says that his investigators will keep at it until they have the answer. An initial expenditure of $50,000 is planned and it is proposed to find, in addition to the cause of colds, what will prevent and cure them. DR. DYER says this is the first "whole hearted attack on the cold problem. Colds cause more disability than any other single disease. We estimate that each day in this country an average of 250,000 persons are out of work because of colds."

J.A.M.A., February 16, 1946.

Inflammatory Phlebostenosis

—As a Factor in the Localization of Rheumatic Diseases—

OTTO MEYER, M.D.,
New York City

THE FACT that rheumatic diseases are more frequently located in the lower extremities than in other parts of the body has been noted by many authors.

Recently Boland[1] called attention to the 70% of 350 arthritis patients in whom the joint involvement was confined to the lower extremeties alone.

Ferguson,[2] referring to 534 cases of acute arthritis, states: "The commonest joints involved were the knee in 80% and the ankle in 54%."

Wiedmann,[3] in his report on 81 cases of gonorrheal arthritis, stressed the fact that the joints of the lower extremities, especially the tarsotibial joint and the knee joint, are most frequently affected.

Rolly[4] states in his book on rheumatic fever that in considerably more than half of his 1,450 rheumatic fever patients the joints of the lower extremities were involved. Rolly quoted Pribram[5] who observed that in 61.4% of his 423 rheumatic patients the joints of the foot and knee were inflamed.

Rolly also pointed out that he found erythema nodosum in most cases in the lower extremities, especially in the lower part of the leg.

Purpura rheumatica, according to Rolly, is also observed very often in the lower part of the leg. He found hemorrhages 85 times in the lower part of the leg, 51 times on the thigh, 17 times on the forearm, and 12 times on the upper arm.

So-called growing pains, often a symptom of rheumatic fever, are nearly always located in the lower extremities, especially in the calf region.

On the basis of these observations there can be no doubt that rheumatic diseases show a decided tendency to affect the lower extremities, but no reasons have been given to explain this peculiar fact.

The purpose of this paper is to show that the explanation for the preferred localization of rheumatic diseases in the lower extremities is to be found in their etiology.

The vast majority of rheumatic diseases is caused by a focal infection. On the basis of his observations the author[6, 7] came to the conclusion that chronic or latent phlebitis is the most frequent focus and as such is more often responsible for rheumatic diseases than any other focus in the body.

The author's 'phlebitis theory' of rheumatic diseases which he originated in 1933 is based on this fact. He observed that after treatment of chronic or latent phlebitis of the legs rheumatic pains disappeared completely, or that the patients improved to such an extent that they could continue their occupation.

When he found some rheumatic cases which did not respond to this treatment, even after foci in the teeth and tonsils had been eliminated, he suspected a 'feeder' somewhere else in the venous system and located it in the jugular veins in the form of a chronic or latent phlebitis. He based his diagnosis on the examination of the jugular veins by palpation. When they were inflamed he found them sensitive to pressure and sometimes he could feel a cord-like infiltration.

In discovering this concealed infection in the jugular veins he found the 'missing link' in the focal infection theory which explains the interrelationship of oral foci and foci in the venous system. The author was the first to stress the fact that oral infections spread by way of the small connecting veins to the jugular veins where they establish a secondary focus.

The author's conception of the venous route in the spreading mechanism of oral focal infections to the jugular veins is based on pathological examinations of patients who had died from acute septicemia after tonsillogenic, dentogenic, and pharyngeal infections. The pathological reports in tonsillogenic septicemia were made by Dietrich,[8] in dentogenic septicemia by Siegmund,[9] and in septicemia following pharyngeal infections by Colby Hall.[10]

From the secondary focus in the jugular veins the infection spreads to the veins of the legs, establishing a tertiary focus. In the treatment of rheumatic diseases it is therefore not sufficient to eradicate the foci in the oral cavity. If the foci in the veins remain undisturbed, they will prevent the rheumatic condition from healing.

It is obvious that an oral infection should infect the jugular veins, because the infection spreads per continuitatem directly from the focus in the oral cavity to the jugular veins by way of the small connecting veins. The reason for the spread of the jugular infection to the veins of the legs is explained by the fact that the circulation in the legs is slow and sluggish even under normal conditions, often to the extent that a temporary venous congestion develops. As the muscular contractions of the leg muscles in walking play an important role in maintaining a normal venous circulation in the lower extremities, and modern civilization and working conditions offer little opportunity for walking, it is easy to understand why so many people suffer from temporary venous congestion in the legs.

Every congested tissue is a *locus minoris resistentiae* to infection. Therefore the temporary venous congestion in the legs prepares the ground for the bacteria from infected jugular veins to establish a focus in the veins of the legs.

When a chronic or latent phlebitis has been established in the veins of the legs, a permanent phlebostenosis develops due to the inflammatory swelling of the intima and thrombus formation. Consequently a pronounced permanent venous congestion is present in every case of chronic or latent phlebitis. And here we find the explanation for the preferred localization of rheumatic diseases in the lower extremities. The venous congestion, which is the result of the inflammatory phlebostenosis, creates a *locus minoris resistentiae* in all the tissues of the lower extremities. Venous congestion causes malnutrition of tissues, accompanied by certain pressure effects. Neither nutritive, nor gaseous exchanges are carried on as they should be, and excretory products accumulate there. Therefore the weakened tissues of the lower extremities succumb more readily to the action of toxins which cause rheumatic diseases, than the tissues of the rest of the body which are not exposed to a predisposing phlebostenotic venous congestion.

In this connection it is interesting to note that Pemberton[11] states in his book on arthritis and rheumatoid conditions: "Transudations into joints occur with increased venous pressure . . . for example in cases of . . . thrombophlebitis of femoral vein."

Levin and Bucy[12] described pathologically a case of proliferative endophlebitis and came to the conclusion that the lesions were associated with symptoms definitely indicative of impairment of the venous return.

It can be seen that chronic or latent phlebitis of the veins of the legs plays a dual role in the etiology of

rheumatic diseases. It produces the toxins which cause rheumatism; and, by causing a phlebostenotic venous congestion of the legs, it exposes the lower extremities to rheumatic diseases to a greater extent than the rest of the body.

The treatment of rheumatic diseases must be directed at removing the phlebitis in the legs, thereby removing the source of the toxins and the inflammatory phlebostenosis which causes a venous congestion, thus weakening the power of recovery of the affected joints of the lower extremities.

The only way to remove the venous congestion in the legs and to heal the phlebitis is the application of pressure. The author uses for this purpose the combination pressure bandage which consists of the moist, medicated Contura bandage, and the firm, elastic Plasto bandage. After protecting the instep, Achilles tendon, and region directly below the knee with gauze spread with vaseline, the Contura bandage is applied loosely. Then, on top of the medicated bandage the elastic bandage is applied under firm and even pressure.

Both bandages are always applied centripetally in order to achieve proper decongestion. If the knee joint is bandaged, it is also protected with gauze spread with vaseline before application of the bandages. The combination pressure bandage is changed when it becomes loose owing to the decrease of the inflammatory swelling of the leg, as a rule about twice weekly.

In arthritis of the foot and ankle the tibial vein is almost always inflamed. It is therefore necessary to apply the combination pressure bandage from the base of the toes to the knee joint, in order to effect decongestion of the foot and ankle region.

In arthritis of the knee the combination pressure bandage must be applied from the base of the toes to the hip joint, because in these cases the inflamed femoral vein causes the congestion of the affected knee.

In order to achieve the maximum effect of the combination pressure bandage, the patient must walk at least three miles every day, preferably one mile three times daily.

Also he should avoid standing, because it slows up the venous circulation in the legs.

SUMMARY: Most rheumatic diseases are located in the lower extremities, because they are mostly caused by toxins produced by a chronic or latent phlebitis in the veins of the legs which also produces a phlebostenotic venous congestion, thereby weakening the resistance of the lower extremities to the toxins to a greater extent than the rest of the body.

The treatment consists in decongestion of the lower extremities with the combination pressure bandage.

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CURRENT BOOKS

Industrial Nursing

Book Review by

C. O. SAPPINGTON, M.D., Dr. P.H.

"NURSING IN COMMERCE AND INDUSTRY," by BETHEL J. MCGRATH, R.N., (for the National Organization for Public Health Nursing). Published by The Commonwealth Fund, New York, 1946, 356 pp., price $3.00.

OF THE considerable aggregate of writings on the subject of industrial nursing far too much has been done by persons who did not have the actual experience to make their pronouncements authoritative, far too little by those who did have such experience. In general expression, the writers weren't informed, while the informed weren't writers. Both have ventured, but the literature so teems with the objective "ought" and "should" that the pattern of genuine subjective authenticity has been difficult to trace. Meanwhile the *one outstanding textbook* which the field of industrial nursing has felt that it had the right to expect from so much writing was still unwritten. The need for it was great, and the place it would fill was well defined; description, therefore, was inevitable. This would be a book *by an industrial nurse* which would treat of industrial nursing *from the inside*—from the standpoint of firsthand acquaintance and intimate personal contacts with the duties and functions, problems and responsibilities of *the industrial nurse on the job*—for only the nurse whose daily professional life is made up of these contacts would be able to appreciate them. And it would be a book by *an industrial nurse who could write*, for such are the varieties and human nuances of these contacts that no one except an industrial nurse possessed of the ability to think clearly and to express her thoughts in more-than-adequate language could interpret them, so as to include them all in the proper evaluation of each. There was always the hope, however, that sometime the elements necessary to the production of such a book—the seasoned experience, the wisdom gained from it, the gifts and temperament of the writer, the facility of translation into terms of usefulness to others, the inspiration and the opportunity—would meet in fortuitous combination. When that occurred, the field would have its text.

Happily, now, it has occurred; the elements have met; and the result is that BETHEL MCGRATH'S "Nursing in Commerce and Industry" is, *ipso facto*, the long-needed manual for industrial nurses, easily the most authoritative and practical treatise in the field—with the ring of reality, the authenticity of sound judgment and seasoned experience, and a grace of style and charm of expression that make it one of the best written and most interesting volumes this reviewer has encountered in a long time.

MRS. MCGRATH is already nationally known, not only through her identifications, as Consultant, with N.O.P.H.N. and the AMERICAN ASSOCIATION OF INDUSTRIAL NURSES, but also through her contributions to INDUSTRIAL NURSING, particularly her department "These Are Your Problems," which is a regular feature of that journal. In the last-mentioned connection, her wise and commonsense replies to nurses' inquiries about their problems, and the forthrightness and ease of the style in which she writes them, have established her as an authority in the field of her work and given her a reputation which many writers on more general subjects might well envy. Back of her abilities, and sustaining them throughout, is her long and successful experience as an industrial nurse, in the position she still holds. In other words, here is an industrial nurse who can write and who knows what she is writing about. The outcome of her first essay in volume scope is, as expected, an outstanding book—complete and sound in all respects that will be of quick and easy use as well as permanent value to those in the field. and highly interesting and instructive to the general reader.

The publishers, too, have risen to

the occasion in that the typography, format, and arrangement of subject matter are excellently and tastefully done. The Table of Contents shows the wide coverage of the material presented on history, industrial organization, employee relationships, duties and responsibilities of the nurse, physical facilities, health programs and healthful working environment, occupational accidents and hazards, occupational disease hazards, non-occupational illnesses and accidents, mental hygiene, orthopedic nursing, nutrition, problems peculiar to women in industry, communicable disease control, records and reports, rehabilitation, workmen's compensation, industrial welfare activities, and hourly nursing service by an outside agency. The book must be read, however, to appreciate the freshness and orginality of the author's approach to many of these subjects.

There is a paragraph in the foreword by ANNA FILLMORE, Chairman, Industrial Nursing Section, N.O.P.H.N., which is worthy of quotation here: "No longer can the industrial health service consider its task done when it has provided good emergency care of industrial injuries or illnesses. Nor can it assume that the addition of a program for prevention of accidents and illness will meet the needs of the modern factory. The healthy individual plant worker and the healthy plant community are the result of many more positive factors than the word 'prevention' denotes, and the teamwork of many persons with a wide variety of skills is involved. Clearly allied with nurses and physicians are engineers, personnel workers, safety men, foremen, managers, shop stewards and the workers themselves."

An introduction by DR. ALICE HAMILTON presents several interesting points of view, among them allusion to the word "welfare" which DR. HAMILTON states the author uses quite boldly, and continues "which still gives me a sense of repulsion, though I realize that it is now a reformed character." Later in the introduction, DR. HAMILTON remarks that MRS. MCGRATH uses this word to cover many group activities in industry, some initiated by employers, some under employee management, as well as public health services, credit unions, and sick benefit and hospitalization plans. The reviewer agrees with DR. HAMILTON and would go somewhat further to say that he believes the expression "social welfare" could probably be used in this connection.

APROPOS of MRS. MCGRATH'S style, DR. HAMILTON says: "Several parts of this book I should like to commend with special enthusiasm. One is the section treating of my own specialty, industrial poisons. It is clear, accurate, concise, has no extra verbiage, is not repetitious of generalities that only clutter up—and are so often found in books of this sort. Another is the fair, judicious, yet sympathetic treatment of malingering and of trade unions, two subjects that few writers succeed in presenting with true impartiality." The reviewer also has a special commendation: while previous writings are freely referred to, they are background material here and the profundities and conclusions of their authors are not "dutifully carried forward" as part of the present text, in the habit of so much medical writing. MRS. MCGRATH is quite capable in the matter of drawing her own conclusions.

It is pleasing that commerce is comprised in this purview of industrial nursing, for there have been excellent industrial health services established among the white-collar workers in various mercantile groups throughout the country. The reviewer remembers well the work of DR. ARTHUR B. EMMONS along this line, which resulted in the publication of his book, "Health Control in Mercantile Life," in 1926. Many services of this sort have been added since and have been highly successful.

Four of the 22 Chapters were written by others than MRS. MCGRATH. Notable is the one on "Sight Conservations" by ELEANOR MUMFORD, R.N., formerly of the National Society for the Prevention of Blindness. This has particular appeal because of the great advances which have been made in the last few years through the pioneering work of DR. HEDWIG KUHN, and the work of DR. JOSEPH TIFFIN, DR. EDGAR WIRT, and their associates at the Purdue Industrial Vision Institute. The fundamentals of testing the visual capacities of any individual and fitting them to the requirements of various jobs through visual analyses have laid the groundwork for the application of what this reviewer believes to be the most scientific example of job placement now being done in American industry.

Another notable Chapter is that entitled "Records and Reports," by HEIDE L. HENRIKSEN, R.N., where record forms of recent origin are nicely exhibited and used to good effect.

One may be a little surprised at the omission of reference to the Industrial Hygiene Foundation of America, Pittsburgh, in the general sources of information and also in the references to such subjects as occupational disease hazards, women in industry, compensation, and rehabilitation, since the Foundation has issued representative and authoritative material on these subjects. This is understandable, however, for the Foundation has not organized a section on industrial nursing nor have its programs contained presentations on industrial nursing, although its publications are available to industrial nurses and will be found of considerable value, particularly for reference work. Nevertheless, the references which have been used are authoritative and up-to-date and represent for the most part the best material in the field.

The appendix contains well-organized material on suggestions for the nurse's library, sources of information, equipment for the health service, standing orders for nurses in industry, outline for manual of policies and procedures, formula for an industrial cleanser, standards for maternity care and employment of mothers in industry, equipment and technique for eye examinations, and formulae for computing cost of part-time nursing service. And there is a careful subject index.

This volume is an indispensable working manual, written by one who not only knows the field of her subject, but, equally as important, knows what is going on in that field; it is unqualifiedly recommended as a useful everyday working tool, and to the end that it may serve in that capacity for which it is so admirably designed, it should be within easy reach on the desk or bookshelf of every industrial nurse in the country.

The "Social" Slant

—On Industrial Medicine—

Book Review by

C. O. SAPPINGTON, M.D., Dr. P.H.

MEDICINE IN INDUSTRY, by BERNHARD J. STERN, PH.D. Published by The Commonwealth Fund, New York, 1946. Cloth, pp. 209, price $1.50.

THIS book has been issued in cooperation with the New York Academy of Medicine Committee on Medicine and the Changing Order and is essentially a review of the social aspects of the subject. This is to be expected since DR. STERN is Lecturer in Sociology, Columbia University and Visiting Professor of Sociology at Yale University.

A glance at the contents gives some indication of the type of material in the book: Scientific Developments in Industrial Medicine; Social and Legislative Backgrounds; The Extent of Industrial Disability; The Handicapped Worker in Industry; Preventive Services; Medical Care and Health Insurance; The Industrial Physician; and an appendix table on "Industrial Pre-payment Medical Plans for Companies Employing Large Medical Staffs, 1943-44."

The volume does not contain material in detail which would be of practical value in everyday experience to the industrial physician and surgeon, but rather is a dissertation on the broad perspectives of medicine in industry involving the social, economic, legal and professional setting within which industrial medicine has progressed, with the milestones of the progress of scientific knowledge which has enabled industrial physicians to cope with many diseases affected by occupations.

A preface, written by PAUL REZNIKOFF, M.D., ends with this statement: "In his monograph DR. STERN surveys past accomplishments in industrial medicine and draws from his data suggestions for future advances. In

this difficult field, so beset with *polemics* (italics ours), he has presented an objective and lucid exposition." The reviewer would go a little further and say that a considerable part of the subject matter in the book is controversial and needs perhaps much more clarification than can be given in a volume of this size, as well as a great deal more experience with the many practical and everyday problems that confront the industrial physician and surgeon. There are factors involved in the solution of these problems that are exceedingly difficult to control, and moreover there must be gradual evolutionary changes if industrial production and progress are to be maintained.

A most worthy purpose will be served by this material if it stimulates clarity of thought, coupled with well-considered action, in the solution of some of the more abstruse social problems of industrial medicine and surgery.

The development of industrial hygiene engineering services, one of the most important preventive aspects of modern industrial medicine, receives scant mention in the chapter on "Preventive Services." It would seem also that the preventive aspects and procedures which have been developed on the medical side should receive (as they do not) fairly adequate treatment at the hands of the author, since many important advances have been made in this part of industrial health work.

One could—as those who are really informed on the workings of industrial medicine undoubtedly will—take issue with the following statement from the chapter on "The Industrial Physician"—"The situation in which industrial physicians usually practice is not generally conducive to favorable physician-patient relationships or high-quality medical care. Even under the most enlightened managements, industrial physicians encounter difficulties in establishing among the employees confidence in their independence and power. When workers complain about plant conditions which affect their health, the industrial physicians are not usually in a position to do more than study the complaints and to make recommendations to management on the prevention of occupational diseases and accidents and concerning general plant sanitation. Many shy away from making such recommendations because they involve difficulties with persons in authority. As one observer put it, 'Management is often unaware of the importance of the doctor's subject, tends to look on the medical department as one of those necessary but subordinate cost items, and will resist with impatience the time and increased cost, seemingly uncompensated, involved in medical recommendations. It must often seem more secure to the doctor to remain quietly just treating the individual employee than to attempt reforms.'"

Apparently the author is unaware of the present-day reciprocal and cooperative attitudes between management and physicians in industry and the high quality of medical service and the high standards among physicians in industry that are to be found in so very many of the large well-organized services throughout the nation.

There are other similarly unwarrantable statements, but "we do not comment upon them here"—as was wisely said by one of our Supreme Court Justices.

The references, as might be expected, are those which largely deal with the social aspects of medical service in industry and are not what one might call a representative group of references on the subject of industrial practice.

This book will have considerable interest to those medical administrators in industry who not only want to know what is being done in industrial medicine, but also what is happening *to* industrial medicine; it is not a book for use by practicing industrial physicians and surgeons because it contains too little of the techniques of industrial medicine and surgery to be a working manual. As a reference work on social changes in industry, it probably will have its principal appeal to those who are interested in the "social" phase of the subject. (See also the Editorial "Invitations to Propaganda," on page 202.)

Vision for the Job

JOSEPH TIFFIN,
Division of Education and Applied Psychology, Purdue University

Recent investigations have opened up new vistas in industrial vision testing—and, incidentally, have overthrown several popular assumptions, such as the belief that a 20-foot acuity test is adequate for measuring vision required by a variety of jobs. Dr. Tiffin points out in this article that as many as 12 visual skills related to job success have been identified and that tests for measuring them have been incorporated into a single instrument.

THAT practically every industrial job requires adequate vision is an obvious fact long recognized by management. The widespread use of a 20-foot Snellen Acuity Test in company medical departments is due partly to recognition of the importance of vision for satisfactory job performance, and partly to the need for a record of visual acuity should the employee later present a claim for compensation due to alleged injury. The Snellen Test serves this latter purpose reasonably well, because laws governing compensation provide that it be computed on the basis of acuity at 20 feet.

However, the first named purpose—visual measurement to be sure the applicant's or employee's vision is adequate for his work—is not satisfactorily accomplished by a 20-foot Snellen Acuity Test.

The use of a single 20-foot, or distance, acuity test for measuring vision required by various jobs assumes that vision is a single function and may therefore be measured by a single test. It assumes further that the keenness of one's visual acuity at 20 feet is indicative not only of his visual acuity at other and closer distances, but also of his level of ability in various other visual skills that may be required for adequate job performance.

Neither assumption is justified by the facts. Visual acuity measurements of hundreds of persons at "distance" and also at 13 inches showed very low relationship between the two acuity measurements. In a separate investigation, 400 persons were given acuity tests at .2, .25, .33, .40, .50, 1.00, 5.00, and 10.00 meters. These tests revealed that the relationship between acuity at any two distances was low and the *farther apart the two distances the lower the relationship.* In both studies it was found that many persons whose distance acuity was well below 20/60 had near acuity above normal while others had poor near acuity but very keen distance acuity. These findings made clear that, for proper job placement, acuity should be measured at least at two distances—one well beyond arm's reach and one well within arm's reach. Several studies made of a number of other visual skills—found to be important for success on different jobs—showed that they were not significantly related to distance acuity and not very highly related to each other. *Different combinations of visual skills were found desirable for different types of work.* Several detailed reports of these investigations have been published. The results show that for typical close jobs, such as hosiery looping and radio tube assembly, the desirable pattern of visual skills calls primarily for near point visual skills. On certain other jobs, such as piston ring inspection, both near point and certain more distant visual skills were found to be of importance. On still other jobs, such as loader and push truck operator, the distance visual skills were of primary importance. On such jobs as "drill press operator," a more critical pattern of visual skills was found necessary when operators lay out their work than when the job is done by means of jigs and fixtures.

Twelve visual skills that are related to job success have been identified.

From *Personnel* (published by the American Management Association), 22:4, 270-271, January, 1946.

Tests for conveniently measuring these 12 visual skills in approximately six to eight minutes have been incorporated on a single instrument known as the Ortho-Rater. By means of this instrument, visual skill patterns for various jobs and types of jobs may be readily determined. These patterns provide convenient and accurate means of insuring that new employees or trainees have the vision required by their work. The patterns also enable experienced and veteran employees to recognize any changes in their vision —possibly resulting from age or job experience—so that they may obtain professional attention if their job performance is being handicapped by inadequate vision.

DR. PILGRIM

HAVING now much study of medical care plans in connection with small industries, relating to a report on like activities for one of the same in the Delta region of Louisiana, 45 miles south of New Orleans, this being a region of absorbing interest, with a history all its own and teeming with tradition and folk-ways as colorful and varied as the inhabitants themselves and the origins and races their mixture represents, among the characteristics of their economy being that so many of them make their living by fishing, and trapping mink and other furry creatures, wherefrom their incomes are greater than the average of the industrial remuneration in the area. . . . AND conferring with an industrial executive in respect of the effects of the steel strike, and acknowledging with him the seeming futlity in an increase of wages whence the ensuing higher prices will keep the dollar from buying as much as before, the effect being only that everyone seems intent to have a seat on the merry-go-round, for the ride that will take them nowhere, to let them off at the same place they got on. . . . AND at the meeting of the CHICAGO SOCIETY OF INDUSTRIAL MEDICINE AND SURGERY hearing my friend, DR. OSCAR SANDER, discourse learnedly and interestingly on "The Chest in Industry," illustrating his comments with an excellent series of x-ray films of chests depicting the effects of many types of exposure, and well showing, among other things, the results of such disdain for precautionary measures as DR. CAREY MCCORD so aptly describes in his chapter on "Little Giants," in the brilliant foretaste of his autobiography just published under the title "A Blind Hog's Acorns." And hearing with interest and profit the discussions by DR. L. E. HAMLIN and DR. W. W. FUREY following DR. SANDER'S presentation. . . . AND making a special examination in a compensation case wherein the claimant, having been exposed to TNT and other explosives, was alleging heart trouble—it being found, after much questioning, and careful examination, supplemented by laboratory tests, that no evidence of either toxicity or heart trouble could be obtained. . . . AND in conference with some industrial engineers, and impressed by their interest in the existence of a common denominator of their profession and the professions of industrial hygiene and medicine, in that certain of the problems of each are found in varying degrees in the others. . . . AND conferring with DR. HOLLIS POTTER in respect of the alleged tuberculosis and silicosis then the subjects of a compensation case, and agreeing with him that the evidence did not support either one; and being vastly interested in the stories—of which his long experience has produced a seemingly inexhaustible fund—of his court and compensation appearances, in particular the one of the occasion on which there was submitted, for examination by a physician on plaintiff's side, an x-ray purporting to be that of the plaintiff's chest, which the said physician identified as being in fact what it purported to be, and concerning which evidence and opinions were adduced that the x-ray showed silicosis, whereas the denouement exposed that the film was actually that of the chest of the attorney for the defense and did not show silicosis; and the other about the interpretation of a film of the spine in which the surgeon pontificated that there was a fracture in the cervical region, quickly correcting himself, however, when it was pointed out that he was reading the film upside down, and that the fracture was in the lumbar region. . . . AND with DR. and MRS. XAVIER to see "St. Lazares' Pharmacy," the same being a clever play, with Miriam Hopkins featured but having a smaller part, the show being really carried by Fridolin; but the more impressed by the setting of the apothecary shop, which was most remarkable, the credit belonging to the College of Pharmacy of Columbia University for the invaluable assistance in assembling the properties in such versimilitude. . . . AND in the laboratory with tests on certain thinners and solvents anent a special problem for a local industry concerned with knowing about the properties of the same while they were being considered for use, and before exposing the employees to their vapors—a most enlightened point of view. . . . AND enroute to St. Louis, where was met by an attorney and a physician, and all driving 175 miles to the southern reaches of Illinois, where, at the guest house in a small mining community, an excellent dinner with plant officials, and physicians, and conference on the case to be tried on the next day—as to which, however, upon appearance in the hearing room, it was decided (the other side not being ready) that the matter would be set for disposal a month and a half hence, an occurrence all too common in such instances, wherefore the necessity of driving back and taking the train from St. Louis. . . . AND at luncheon with two officials of a large plant in Central Missouri, especially concerned with setting up a plant dispensary and a health service for employees, and finding here the problem of transferring the attending physician from a fee basis to a part-time salary, and also the necessity of providing a proper first aid service with a full-time nurse in charge. . . . AND in Milwaukee to speak before the Industrial Nurses Institute, sponsored by the State Department of Health, on the subject "The Relationship of the Industrial Health Programs," and on the same session program with DR. LEONARD E. HIMLER, of Detroit, who spoke on "The Mental Health Aspects of Industrial Nursing." and finding that our ideas on psychosomatic medicine supplement each other very admirably; and spending the evening with DR. PAUL BREHM and CATHERINE CHAMBERS, R.N., discussing many problems and viewing, in the taproom of the Hotel Pfister, an exhibition of old silent movies, with striking contrast as to the "now" and the "then"; and the next day at luncheon with DRS. HIMLER and BREHM, and a group of nurses, with interesting converse concerning psychotherapeutic techniques. . . . AND reading enroute Omnibook's excellent abridgement of "Papa went to Congress," by Kenneth Horan, and "The Life of the Heart," by Frances Winwar, of which the former is a good characterization of life during the time of Grover Cleveland, and in which the authoress speaks of a male quartette which had a first alto, second alto, tenor and bass, whereas the real parts are first and second tenor, first and second bass, this being, perhaps, a technicality but nevertheless to PILGRIM an interesting one; and the latter story an excellent tale of the life of George Sand and the great struggle which she had to get her work of writing plays and books done among all the interruptions of governmental upheavals and domestic strife, notwithstanding all of which she had a great influence on the life of Chopin, and was undoubtedly responsible for helping and inspiring him to write some of his best music. . . . AND to Purdue to lecture at the Purdue Industrial Vision Institute, and finding many questions of interest and perplexity; and later for libations at the home of PROF. and MRS. TIFFIN, with PROF. and MRS. WIRT, the RAY REEDS, and with them and others to a steak dinner later in the evening; and next day at the REED'S, meeting the same group and also the HITZS, from Milwaukee, and JANE DAVIS, from Rochester, New York, who expressed her great interest in what she called "pseudo-somatic medicine"; and leaving by the evening train with MADAM PILGRIM, all having had a very enjoyable sojourn and learning new things the while. . . . AND now concentrating on plans for engagements and talks, trips, lectures, surveys, and medicolegal investigations, of which more later. . . .

Industrial Medicine
Reg. U. S. Pat. Off.

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1946 Conference on Industrial Health

THE five professional organizations which are actively engaged in industrial health activities will hold their ANNUAL CONFERENCE ON INDUSTRIAL HEALTH at Chicago, April 8-13, 1946. These associations are (1) AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS (Thirty-first Annual Meeting); (2) AMERICAN ASSOCIATION OF INDUSTRIAL NURSES (Fourth Annual Meeting; (3) AMERICAN INDUSTRIAL HYGIENE ASSOCIATION (Seventh Annual Meeting); (4) NATIONAL CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (Eighth Annual Meeting); (5) AMERICAN ASSOCIATION OF INDUSTRIAL DENTISTS (Third Annual Meeting). Headquarters at Hotel Sherman.

The Cornell-Caterpillar Program

SCIENCE usually proceeds from the visible to the invisible, from the simple to the complex—the naked eye was in use long before the microscope or telescope came along to open up new worlds for inspection. Hence, in the science of industrial medicine, to advance from the physical or inanimate portion of the industrial environment, which has been the subject of long and lately severe scientific scrutiny, to the comprehensive appraisal of the animate portion, the human beings, is a perfectly natural and yet very progressive step. Not that the animate portion has been overlooked or neglected, but rather that the emphasis in the past has necessarily been more on what the environment might or could be doing to the individual in the way of injuries and occupational diseases, than on its effects in connection with the intangibles of his own subjective emotional equipment. But even so, the intangibles have also been appraised and evaluated. The preplacement examination has been reaching out to take cognizance of them to an increasing extent, and the nature of the placement itself has been scientifically adapted to such excellent purposes that practically nothing of either the physical or the emotional is overlooked. Thus there has seemed to be only one more step, which would be such adjustment to the job, the surroundings, and the co-workers, as would afford each individual the fullest opportunity of satisfaction and the greatest amount of happiness in whatever he might be doing. The machinery of this, of course, would embrace selection and placement, but it would be geared to go all the rest of the way by following these up with adjustment. This last would be the most important of all, as it would constantly tend to make selection less selective and placement more feasible, after which it would carry on for the purpose of correcting all the mistakes in both, to the end that the employee might be not only efficient and productive in the job he would be doing, but happy, and contented, and important, in the doing of it. This last step, the final one of the full-statured industrial medical set-up, has now been taken, and the Cornell-Caterpillar Program described by DR. VONACHEN and his associates (page 179) is a detailed explanation of how it works among the employees of Caterpillar Tractor Co. Reference to this description will be vastly more illuminating than any summary of it here. In addition to its inherent significances, however, this movement toward inclusion of the human relationships of employment on the permanent day-by-day basis of continued work in not only the safest and most comfortable physical environment, but also the happiest and most satisfactory mental and emotional adjustment both subjective and objective, is an expression of the fact that industrial medicine is coming to its full growth. And once again in a forward movement of remarkable significance Caterpillar Medical Division is the pioneer. The inauguration of this program is a cause for congratulations; its progress which is bound to be expandingly successful will be watched with every good wish for its wonderful possibilities and with great interest in them as they reveal themselves. Who shall say that the outcome of the movement thus auspiciously begun may not be the final answer to the problems of the misfit, the irresponsible, and the accident-prone? Even beyond that, however, is the ultimate in the improving of human relationships in industry—their establishment on the firm and fine footing of such mental and emotional as well as physical appraisal as will discover for each and every employee the place he can fill with the maximum of satisfaction and, we repeat, *importance*, to himself. His greater efficiency then will follow as matter of course. This is a goal that is well within the reach of the kind of medical care represented by the Cornell-Caterpillar Program. May this Program, therefore, have wide and immediate emulation.

Invitations to Propaganda

IT WAS probably too much to expect that industrial medicine would escape the attention of the "social planners." But they are thorough, if nothing else, and now the attack on this specialty seems to be in preparation; the ammunition, at least, is in process. From the indications, the technique will be the same as that used in the assailment of general medicine—the half truth, the carefully qualified statement so art-

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fully drawn as to inspire immediate quotation without the qualifying words, the generalization from insufficient data, the investment of scant or no information with the sly verbiage that persuades to a wrong conclusion, the skillful build-up to the desired impression, the high-powered double-talk—all the artifices of the propaganda in which the "planners" have become so adept. It makes little difference that their claims often blow up in their faces, provided the blow-up is less forceful than the earthquake which would be needed to erase a general impression they have succeeded in making. For example, the impression left in the public mind by the Truman use of the 4-F percentages to show the alleged need for compulsory health insurance will not be more than merely dented by publication of the long lists of 4-F's who are playing college and professional football and baseball, or the Army's now open acceptance of the 4-F's for present military service—although either of these is an effective answer to the 4-F argument. The trouble is that the truth is slow, and inarticulate—limping along in the rear, "on the arm of time." The half-truth, however, bellows a constant stream from every instrument that reaches eye and ear. Nevertheless the situation will be far from hopeless if every alert intelligence that spots an untruth, a half truth, or an objectionable expression in the circumstances of propaganda use or possibilities will demand a showdown on the facts, and insist that the facts be completely and truthfully presented. Whether or not we qualify in respect of alertness, let's have a showdown on the statement to which DR. SAPPINGTON refers in his review of the recent book in which it appears page 199). This statement is the one beginning: "The situation in which industrial physicians usually practice is not generally conducive to favorable physician-patient relationships or high-quality medical care." The author of this was uninformed, regardless that a modicum of study of the many "situations in which industrial physicians practice" in his immediate neighborhood would have given him correct information. Moreover, he would have found these industrial physicians in the midst of highly "favorable physician-patient relations" and responsible for a very high quality of medical care—enjoying, in each case, the confidence of the employees and the respect and cooperation of the management. The full context of this statement is labeled an "objective exposition." In the habit of the "objective," there is carelessness in the use of terms. Here, the extent to which the author of the statement believes it reflects the facts is exactly the extent to which he is talking, not about *industrial* physicians, but about some other kind of physicians. *Industrial* physicians don't practice under the conditions he describes; if there are physicians who do, they are not *industrial* physicians, as every one of the real industrial physicians of the country will immediately appreciate. What industrial physicians will think of this statement and its context, however, is not as important as what others will think—which, of course, suggests the uses to which the statement and its accompaniments (of which there are too many, of the same back-handed tenor) will be put. All of them are invitations to propaganda purposes; each is an open bid to be used separately for the strengthening of a propaganda argument or appeal. If objection is made to our selection of the single one above quoted, this objection should also hold with full force and effect in the event that the same statement is used apart from its context by anyone else. It is inevitable, however, that it will be so used, because it offers exactly the picture of industrial medicine which the proponents of government medicine must, for their "social" purposes, desire to impress upon the public mind, regardless that it is an untrue picture. But untrue as it is, it is cleverly phrased. The qualifying "usually" and "generally" seem to have been injected with charitable intent—to mitigate, as it were, a perfectly awful situation which the author, apparently wanting to be temperate, hesitates to describe in the full terms of its awfulness. Hence it will be overlooked that the real effect of the qualifying words is not the wholly honest one of making a too right statement as exactly correct as it should be, but instead is the trick effect of making a completely untrue statement appear less untrue than it is—enough less untrue so that it will not be questioned, but may be referred to as authoritative. One place where a little knowledge is really "a dangerous thing" is in the propaganda applications of that little knowledge. There occurs the thought, however, of the earnest and articulate lawyer who lost his argument—and his case—because he built his brief around *selected sentences* from cases which were not in accordance with the weight of authority. The book containing the statement herein discussed is largely built around *selected sentences*—these having been lifted from their own contexts where they read as they were intended to read, with no distortion or possibility of the wrong impressions attempted by such uses as seem to be the rule in this compilation. If this collection of extracts from references was intended as an "objective exposition" it is too bad that the "objective" could not have been more factual and less "social." Can it be that the social planners are afraid to have the *facts* regarding industrial medicine fully and truthfully set forth? Whether they are afraid or not—and it would seem that they are—industrial medicine isn't.

Hearings on the Wagner-Dingell Bill

THE Senate Committee on Education and Labor has scheduled hearings on S. 1606, the second 1945 version of the Wagner-Murray-Dingell bill, to commence on Monday, March 18, at 10:00 A.M. These hearings will last, it is reported, for about a month, and plans are being completed so that the American Medical Association will be adequately represented during their course. Senator Murray, Montana, cosponsor of the bill, is chairman of the committee. It is hoped that, if industrial medicine, or "medicine in industry," or medical care plans for industrial employees—or the subject by whatever name—is injected into the testimony, its spokesmen can be *industrial physicians*, medical directors of plants, *actually engaged in the work they will be talking about*, and not the "objective" surveyors who view this subject from the cloistered halls of "social" theory. The AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS should be asked to send its representatives. This organization can furnish all the expert testimony the Committee can use; there are no other "experts" as well qualified to know what they are talking about as will be found among its members.

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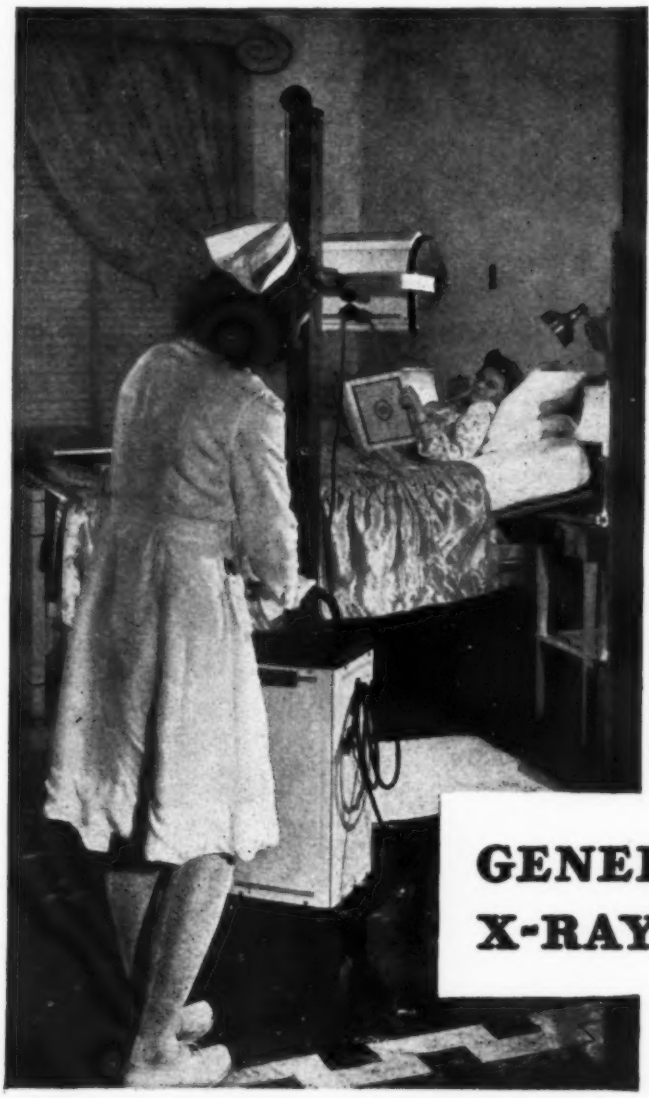

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S. pyogenes hemolyticus	+	1—100,000	1— 10,000
S. salivarius viridans	+	1— 5,000	
S. fecalis	+	1— 40,000	1— 5,000
S. anhemolyticus	+	1— 40,000	1— 10,000
D. pneumoniae I	+	1— 40,000	
N. gonorrhoeae	—	1—100,000	1—100,000
N. intracellularis	—	1—100,000	1— 40,000
E. coli	—	1—100,000	1— 80,000
S. schottmuelleri	—	1—100,000	1—100,000
S. paratyphi	—	1—100,000	1—100,000
E. typhosa	—	1—200,000	1—100,000
S. dysenteriae	—	1—200,000	1—100,000
P. vulgaris	—	1— 20,000	1— 10,000
Cl. welchii	+	1— 20,000	1— 5,000
Cl. tetani	+	1— 20,000	1— 5,000
Cl. novyi	+	1—200 000	1— 40,000
M. tuberculosis (var. hominis—607)		1—200,000 (48 hours)	1— 5,000
M. tuberculosis (Gary)		1—500,000 (30 days)	1— 40,000 (30 days)

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1. Dodd, M. C. and Stillman, W. B.: The in Vitro Bacteriostatic Action of Some Simple Furan Derivatives, J. Pharmacol. & Exper. Therap. *82*:11, 1944.

2. Snyder, M. L., Kiehn, C. L., Christopherson, J. W.. Effectiveness of a Nitrofuran in the Treatment of Infected Wounds, Military Surgeon *97*:380, 1945.

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—*Continued from page 16.*

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—From *New York Sun*, January 28, 1946.

Deaths from Hernia

DURING the past few years the apparent increase in the number of fatalities following operations for the cure of hernia has inspired a survey of the claims filed during the year 1944. Statistics based upon claims filed show that during that year 5,157 claims were filed alleging hernias as a result of industrial injuries. The time loss from these claims totaled 413,246 days. Unfortunately, our statistics are so compiled that there is no way of determining how many of these claimants were operated. It is found, however, that during the year 32 applications were filed for death claims following hernia operations. These death claims accounted for 192,000 days lost. Subtracting this number from the total days lost, an average disability of 43 days per claim was found. Counting the death claims with the total number of days lost, this average per claim is 30 days. It is found therefore that the fatalities resulting from hernia operations are nearly double the time lost from injuries resulting in hernias. In making the survey of the death claims 30 out of the 32 files were available. It was found that the decedents were all males from 22 to 80 years of age with 21 between the ages of 50 and 70. The reports on file indicate that 14 of the deaths were due to pulmonary embolism; eight to conditions complicating strangulation of the hernia; three to coronary occlusion; one to pneumonia, and four to miscellaneous causes. In most instances death occurred before the decedent left the hospital. Twenty-four occurred before the twentieth day. Hernia operations are usually considered quite safe, especially those in which there is no evidence of strangulation. The above information, however, shows that sudden and unexpected death can result from a blood clot in the circulation resulting in the occlusion of an artery in the heart or in the lungs. Such an occurrence is not the result of any negligence on the part of the surgeon, nor can it be predicted or avoided by physical examination prior to, or at the time of operation. Just why it should occur in some cases and not in others is probably unknown. The presence of hernia can usually be detected in pre-employment examinations and when found it should be given attention in order that the employee can be given suitable work at which there is but little opportunity for sprains or strains. Proper attention to the correct manner of lifting is also of importance in avoiding hernia and back strain.

—*Ohio State Med. J.*, February, 1946, quoting DR. W. E. OBETZ, in *Ohio Industrial Commission Monitor.*

Sore Finger-Tips

AN accidental observation by a wire-stitching machine operator in a paper-bag factory has led to the discovery of a method which largely protects the skin of the finger-tips from damage by the constant friction in this work. The operator is supplied with a small quantity of 20-vol. hydrogen peroxide, into which each finger is dipped. The necessary number of applications varies from three times a week to four times a day. All the workers have noted the considerable protection which this treatment affords. In a group of 12 women working under strictly comparable conditions for a period of six months before and after treatment, the number of attendances at the surgery for treatment of sore and bleeding finger-tips fell from 192 to 21. The result of this small series would appear to make further trials on a larger scale worthwhile. Efforts have been made to find out why peroxide should prevent sore finger-tips, but without success. Peroxide in this strength produces some coagulation of the surface proteins in the skin, which

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Physicians increasingly recommend the use of TAMPAX as an *internal* menstrual guard for very sound *physiological* reasons: The female pelvic floor is built almost as if *designed to hold a tampon* in place—thus contributing to comfort in use. By absorbing the discharge at a point nearest the source of flow, TAMPAX minimizes the development of odor—and effectively contributes to a sense of daintiness. • It also obviates the undesirable warmth, friction and pressure of external pads on the clitoris. Finally, it greatly reduces the possibility of spreading infection from rectum to vagina.* • Available in three absorbencies—"Super", "Regular", and "Junior" to meet individual requirements. Please use the coupon for a professional supply.

*Dickinson, R. L.: J. A. M. A. 128:490, June 16, 1945.

Sculpture prepared under the direction of Robert L. Dickinson, M. D.

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appears usually as a number of small white pin-points. There is no reason to assume that there is any particular chemical substance in the paper against which peroxide is giving protection, and its action is presumably due to the effect of coagulation on increasing the resistance of the skin to friction. No ill effects have been caused by the use of 20-vol. hydrogen peroxide in the way described above. My thanks are due to the management and staff of the Aylesford Paper Mills and Medway Paper Sacks, Ltd., for their help in carrying out this investigation and their permission to publish this paper.

—J. VINCENT BATES, M.B., B.CH., *Brit. Med. J.*, August, 1945; quoted in Lippincott's *Digest of Treatment*, February, 1946.

COMMENT and OPINION

THE Baltimore and Ohio Railroad is the first major railroad to provide chest x-ray service for its employees.

—*The Peoria Fluoroscope*, February, 1946, quoting *Tuberculosis Topics*.

INDUSTRY has a selfish interest in the eradication of tuberculosis and all other physical afflictions, because we depend upon a fit physical unit to produce at capacity from our good equipment. Impaired physical structures are figuratively "slow-downs," and we are certainly against "slow-downs." No modern industry would think of using second grade equipment if it could afford to secure better. Faulty machinery improperly geared, incorrectly mechanized, below par in lubrication, wrong lighting, and poorly-spaced machines are things that defeat economical production. It is exactly the same with the physical conditions of the working force. The unseen or unknown physical weaknesses, the misunderstood, the indefinite, or the inefficient attitudes are costly, and certainly the presence of a damaging disease among the working force is a cost burden that industry dare not shoulder. We must be interested in tuberculosis control because we assess ourselves with an unnecessary burden and an unnecessary cost if we stop short of doing all we can to eradicate physical weaknesses. Twenty or 25 years ago the industry I represent—the foundries—became active in the primary work of examining into silicosis, and then developed a definite pattern of tuberculosis examination and control. Each month in the intervening 20 years has shown added activity, improved procedure, better performance, and more satisfactory results. We have now come to the point where we know it should be an accepted procedure in industry for the working force to be examined by x-ray to detect the presence or absence of tubercular conditions.

—From "Management's Interest in Tuberculosis Control in Industry," by L. E. ROARK, Executive Vice-President, National Founders' Association, in *Proc. Institute of Medicine of Chicago*, January 15, 1946.

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—*Personnel*, January, 1946.

Canteens

IS IT not a curious reflection that those newest to industry should be the best provided for? Many an old-timer, for years habituated to the billy tea and the "nosebag" lunch taken at the bench or the curb outside the factory, has looked with astonishment at the bright and attractive new messroom with its choice of hot and cold food, with a feeling that this was a wartime phenomenon which would disappear with the peace. But to return to the benefits which improved meal amenities in factory, or as the Americans have it—"in-plant feeding," confers on the workers. A Canadian investigation, carried out by the government early in the war, evoked the opinion from the medical head of the investigation, that an improvement calculated at 25% in health and 10%

To Eat a Good Breakfast Is Sound Advice

Adequate nutrition implies more than the intake of so many nutrients according to the recommended daily allowance. Not only must the daily dietary maintain the metabolic equilibrium—a purely physiologic function—but foods must be distributed over the day in such manner as to contribute to optimal efficiency and to a feeling of well-being. No single meal should be unduly large; meals should be conveniently spaced so that hunger does not supervene.

The advice to the worker to eat a nutritionally adequate breakfast is based on experience gained in practical industrial performance. The fast from the evening meal to the following noon may not be felt by the breakfast-skipper as a distinct sensation of hunger. Objectively, however, efficacy appears to be reduced, and the acuity curve may go dangerously down with the result of increased frequency of accidents.

A good breakfast is important for the worker because it aids in making essential nutrients and caloric food energy available when needed and in properly distributing the daily digestive burden.

The breakfast of the industrial worker should conform to the basic breakfast pattern of fruit, cereal with milk and sugar, bread or toast and butter, and a beverage. Other foods can be added if caloric augmentation is indicated.

The large variety of cereals available makes universal taste appeal assured. The cereal dish provides not only readily utilized food energy, but also biologically adequate protein, readily emulsified fat, and carbohydrate. The nutrient content of a serving consisting of 1 oz. cereal (whole grain, enriched, or restored to whole-grain values of thiamine, niacin, and iron), 4 oz. milk, and 1 teaspoonful of sugar is indicated by the following table of composite values:

Calories	**202**
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Carbohydrate	**33 Gm.**
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Thiamine	**0.17 mg.**
Riboflavin	**0.24 mg.**
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Never before has this improved Kelly Pad been available at this amazingly low price. Slashed to almost half its former price, it has the same easier-to-use features and top grade rubber material that have made it so much more efficient than the old model. The cloth-inserted maroon rubber construction adds years of wear and resistance to repeated rough treatment. Malleable metal stays located transversely from bottom to top of apron permit a variety of rolled shapes to fit into large or small receptacles for irrigation. Maintains any shapes assumed. Pad is reversible; thoroughly sterilizable by boiling. There are no crevices to resist cleaning. Inflation bulb is furnished with each pad. Take advantage of this remarkable offer at once.

8R253A—Improved Cloth-Inserted Maroon Kelly Surgical Pad, 24 by 44 inches, complete with inflation bulb, each **$3.95**

A. S. ALOE COMPANY

1831 Olive St. — St. Louis 3, Mo.

in efficiency was noted in workers in those factories where proper facilities were provided.

—From "Design and Operation of Industrial Canteens," by A. W. KEOWN, Superintendent of Victorian Railways Refreshment Services, Melbourne, Australia.

The Patient's Participation

THE importance of the patient's participation in treatment is becoming increasingly significant. The old days of pills and powders have passed. As scientific knowledge progresses, as specific dietaries are recognized as therapeutic and as chronic diseases such as arthritis call for a carefully regulated regimen of rest or specific exercises, the patient must share enhanced responsibility for successful treatment. Obstacles to treatment, whether in the patient's attitude or in his social situation, must be overcome. Last winter a 42 year old patient came to one of our hospitals from a nearby state for treatment of hypertension. He was found to be an excellent candidate for the Smithwick operation. His medical record contained these notes under "Social History": "Married and five children, living and well. Lost present job for medical reasons, couldn't keep up. Afraid of dizziness." The patient was referred to the social worker, with a report that he had refused the proposed plan for medical care when it was explained that it would mean a few months at home with diet regimen for weight loss, followed by operation with a carefully guarded and lengthy convalescence. The patient had had an industrial accident in 1937 that resulted in amputation of his leg, but in spite of this handicap he had returned to his skilled work in an aircraft factory. His job as drill-press operator entailed lifting heavy steel bolts and feeding them into the machine. He remained sitting while the machine was in operation, but was forced to stand repeatedly while it was being supplied with bolts. The patient's return to this job was obviously out of the question. Fortunately, he was a resident of a state in which the revised Physical Rehabilitation Act was in effective operation. The surgeon's plan was offered in definite form, and the way was cleared for it through social planning with the patient, the physical-restoration supervisor and the Welfare Department under provision for Social Security Aid to Dependent Children. Careful following of a diet regimen made possible the operative procedure, and after suitable convalescence a program for vocational training in office work was begun.

—From "Some Clinical Aspects of Social Medicine," by IDA M. CANNON, in *New England J. Med.*, January 3, 1946.

Color and Safety

SCIENTIFIC application of color to internal construction components of industrial establishments has resulted in the elimination of one of the prime sources of industrial accidents by providing clean, wholesome, morale-building areas, according to E. D. Peck, general paint manager of the Pittsburgh Plate Glass Company. Commenting on the results of a recent company survey of 6 different types of industrial and manufacturing plants to determine effect of scientific color application on employee safety, he said: "Improvement of actual environment in industry through application of the principles of color dynamics is emerging as one of the more significant advances in industrial safety made during the war."

—From an Item in *New York Times*, February 5, 1946.

Draft Rejection Fallacy

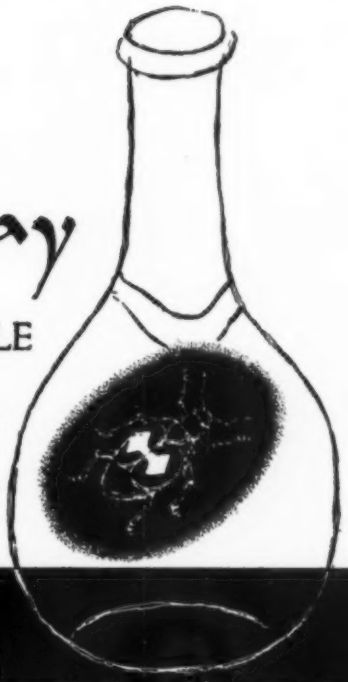
PRESIDENT Truman's citation of draft rejections as a compelling reason for the introduction of compulsory sickness insurance in the United States loses its plausibility on comparison with draft rejection in Britain where this insurance prevails. In his message recommending government medical care insurance, the President said, "The number of those rejected for military service was about 30% of all those examined." But in Great Britain, which has had compulsory sickness insurance since 1911, the draft rejections were far higher. How they ran is indicated in the published Annual Reports on the British Army. Rejections for the 10 years ending with 1936 are available in the annual report for that year. During all the

A long way

FROM A BEETLE

IN A BOTTLE FOR

WHOOPING COUGH



It's a long way from the English folk therapy of putting "a beetle in a bottle" to specific prophylactic immunization with pertussis vaccine and modern control of whooping cough with

DIATUSSIN

Bischoff

Many children are still not spared the harrowing experience of whooping cough both through absence of immunization and failure of the vaccine to afford protection. These children need prompt and efficient relief – as provided by DIATUSSIN – to prevent the onset of dangerous complications.

DIATUSSIN-BISCHOFF acts to reduce the frequency and increase the productivity of the cough sparing the child needlessly excessive and futile paroxysms. In contrast to the opiate anodynes, DIATUSSIN obviates gastric distress and eliminates the prospect of harmful oversedation. In drop or syrup form, DIATUSSIN-BISCHOFF acts pleasantly, safely, and effectively.

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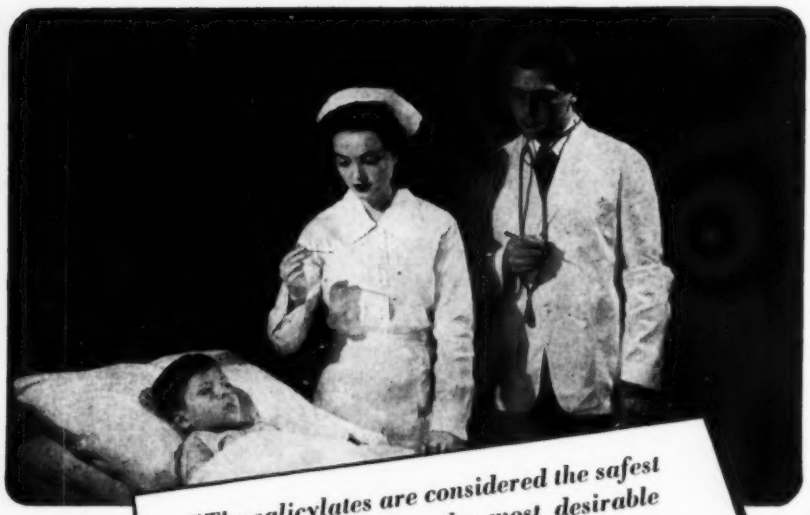


"The salicylates are considered the safest and are, therefore, the most desirable antipyretics in general use."

—Conferences on Therapy: N.Y. St. Jl. Med., 40: 1737-45 (Dec.) 1940.

Acetyl-Vess

producing an effervescent salt of aspirin (8.5 grs.) buffered with sodium citrate (27 grs.)

provides an improved method of prescribing acetyl-salicylate while assuring a concomitant intake of fluid.

As such Acetyl-Vess affords an effective antipyretic and analgesic agent for use in the treatment of colds and influenza and for the relief of pain in myalgia and the arthritides, including rheumatic fever.

Combined buffers serve to—

Speed stomach emptying time—reducing tendency to gastric upset

Make acetyl-salicylate readily available for absorption—augmenting analgesic effect

Available through your prescription pharmacy in bottles of 25 tablets.

AMES COMPANY, Inc., Elkhart, Indiana

10 years, 677,515 were served with notice papers and 400,775 were rejected, or 59%. Even allowing generously for the effects of a lower standard of living, if Britain after 25 years of sickness insurance had a rejection rate practically twice that of America, there seems to be little argument in the draft rejections for socialized medicine.

—*Chicago Tribune*, quoting *Christian Science Monitor*.

Bureaucracy

IT IS APPALLING the bureaucratic control that would be necessary to administer a scheme of this type which would include, according to Senator Wagner's estimate, 135,000-000 people. It would require an army of inspectors, continually checking on the relationships of patients to physicians, to hospitals, to pharmacies; another army of auditors checking on the expenditures of funds; a smaller army of statisticians who would collect the data for the justification of the expenditures. If the experiences of European countries can teach us anything, many small bureaus and offices will be necessary throughout the country as centers for the local administration. All of these will be equipped with stenographers, clerks, bookkeepers, and will require rental and equipment appropriations. No small expenditure will be involved in the provision of printed forms which are so necessary in all government activities. Free Choice: It is said the bill offers the insured free choice of physicians. It must be remembered, however, that free choice can be exercised only among the physicians who are willing to accept government employment, and experience in other countries has shown us that where physicians are too popular, the government limits the number of patients permitted a physician; thus, obliging some to be content with a second or third choice. In the rural districts where medical care is limited and the government must provide, of course the residents will be obliged to be satisfied with whomever the government employs. Eligibility: To be eligible for medical benefits, the individual must have been currently insured for a period of at least a year and a half immediately preceding the time of making a claim, and must have earned not less than $150.00 in the first 12 months of that period. The bill provides, however, that the Surgeon General may determine for any calendar year or part thereof that every eligible individual "pay a fee with respect to the first service or with respect to each service in a period of sickness or course of treatment," and "shall fix the maximum size of such fee." He may also "limit the application of such fees to home calls, to office visits or to both, and may fix the maximum total amount of such fee payments" and further, "may also provide for differences in the maximum size of such fees or total amount of such fee payments for urban and rural areas" where differences occur between the states or communities.

—From an Editorial in *J. Arkansas Medical Society*, February, 1946.

Minor Injuries

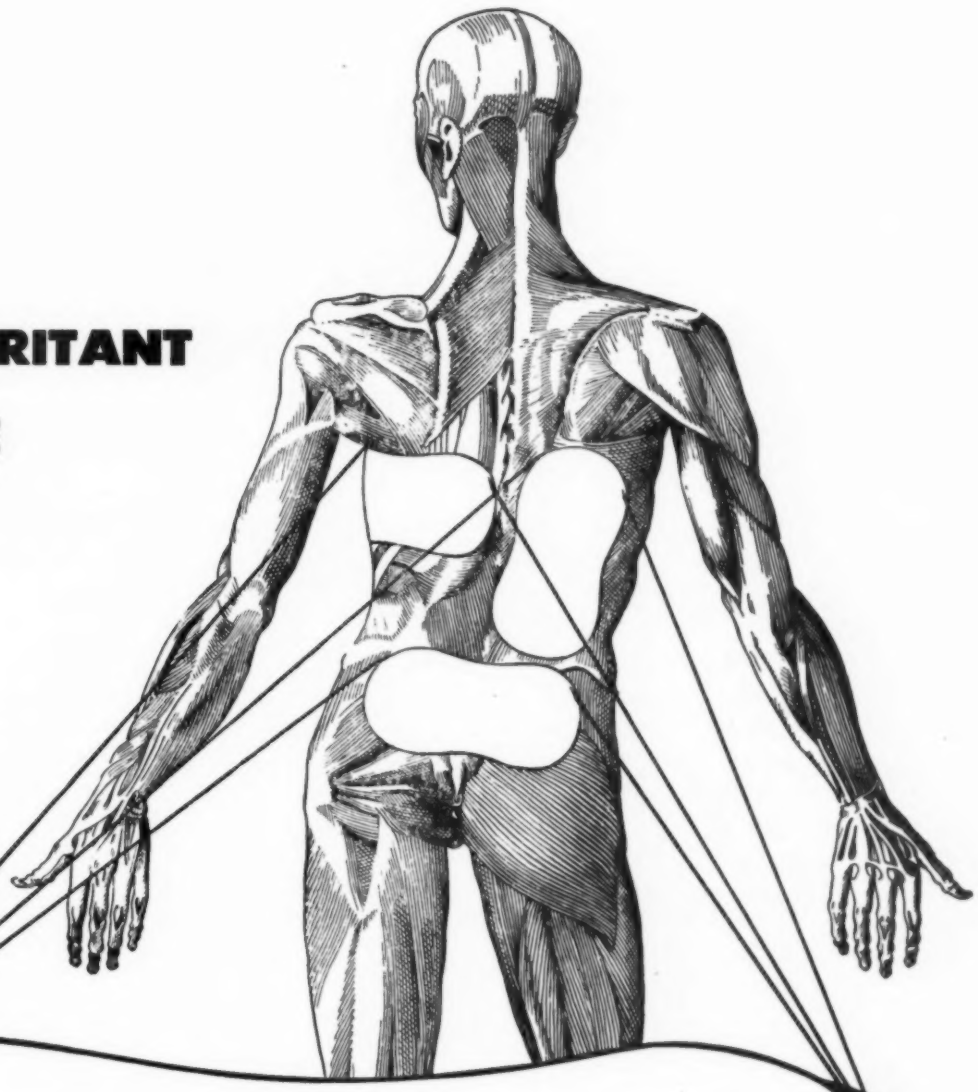
TO EMPHASIZE just how important is the proper application of First Aid in the treatment of minor injuries, we need simply look at the magnitude of this type of injury. Over 90% of all industrial accidents fall into the category of minor injuries. By minor injuries are meant all cases except those which result in death, permanent disability, or permanent partial disability. Recent figures from shipyards demonstrate that the time required for the medical treatment of minor injuries very nearly equals the actual time lost from work as a result of temporary total disability.

—From "First Aid is a 'First,'" by A. D. BRITTON, Director of Medical Relations, in *American Mutual Magazine*, January, 1946.

Nerve Trauma

FORMERLY, surgical intervention in trauma of the peripheral nerves was not believed to be indicated until three to six months after injury. More recently, earlier treatment of traumatized nerves has been advocated. Preliminary experimental studies in animals showed that every added stimulation of the distal and proximal ends of a cut nerve aggravated the clinical course and increased the histopathologic changes in the somatic and vegetative nervous system. It was concluded that the distal nerve segment is not only viable but is still united indirectly with the animal organism, and that by repairing this part of the nerve the development of the pathologic process may be halted and improvement may result. Danger of infection in early surgical intervention

A SAFE COUNTER-IRRITANT FOR SIMPLE BACKACHE



• In cases of simple muscle pain, soreness, stiffness or fatigue, Johnson's BACK PLASTERS are a convenient agent for continuous counter-irritation, support and protection against chilling. Their primary effect is simple, direct and desirable. The plaster's mild counter-irritant, held on warm flannel, causes local and reflex hyperemia—relieving congestion, easing muscle pain and assisting natural body processes.

• Results are immediate and prolonged—one plaster may remain in place for several days, exerting its *continuous* heating, protective and pain-relieving effect. More and more physicians use this tested aid where patients require additional splinting and warming action in post-treatment exposure.

• *Write for liberal free supply of Johnson's* BACK PLASTERS *and* BELLADONNA PLASTERS. *Both are worthy of increased clinical attention.*

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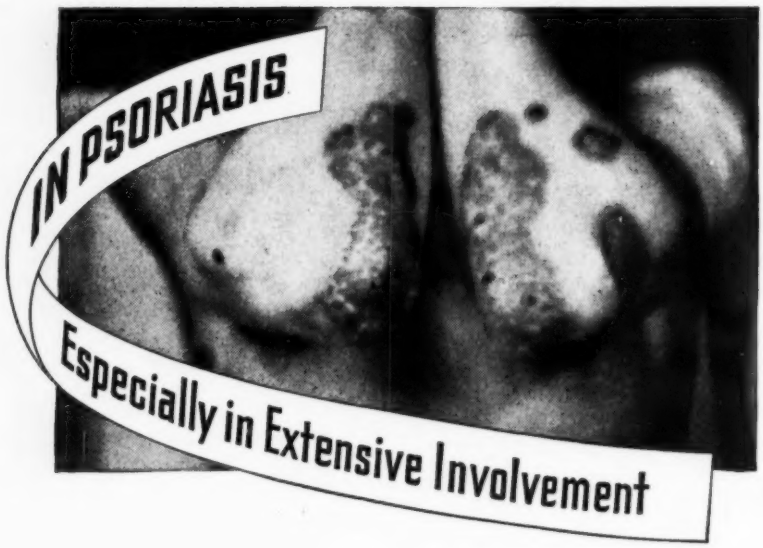
Johnson's **BACK PLASTER**



THE persistence of the psoriatic lesion is disheartening to both physician and patient. Especially difficult of treatment is the extensive involvement which embraces large areas of the skin surface. In the treatment of this type of psoriasis, Tarbonis offers advantages never before realized in a tar preparation. Odorless, colorless, non-staining, it may be applied to large areas without soiling clothing or skin. Thus the patient is given the full benefit of crude tar without any of its disadvantages. When employed in conjunction with ultraviolet therapy, Tarbonis leads to rapid disappearance of the characteristic scaling papules and controls the troublesome itching.

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was considered remote. It is reported that 11 cases of causalgia, trophic ulcer and sluggish wounds were successfully treated by the injection of 70% alcohol into the distal end of the severed nerve at a point below the site of the trauma.

—*What's New*, (Abbott Laboratories), abstr. from *American Rev. Soviet Med.*

We'd Rather Be Free Than Secure

WHAT causes us concern is the so-called "liberal" elements in Congress, who attempt to perfect society through legislative fiat. We fear these social reformers more than we do the psychotic rebel rousers. For while the rebel rouser receives encouragement and applause from a comparatively few narrow minded and frustrated individuals, the social reformer draws his support from large masses of honest and decent people who would like to see a better world. The danger, as we see it, lies in the method by which these "liberals" are attempting to cure social ills. Liberty and freedom can neither be attained nor maintained without sacrifices on the part of the individual. The moment that centralized government assumes paternalistic supervision over its citizens, the citizen necessarily becomes a servant of the state. This condition is the keynote to totalitarianism which at first poses as a benevolent agent but in the end enslaves its subjects. It makes little difference whether such initial protective measures favor one class of the population or another; the end result is the same. As the state becomes strong the individual becomes correspondingly weak. The present efforts to bestow security upon able-bodied Americans are deeper than appears on the surface. The pending EMIC program and the Wagner-Murray-Dingell Bill are only the prologue to the contemplated scheme for "full protection." We contend that the only protectors which can fully benefit our war veterans and our war workers are JOBS. The way to provide these jobs is through a sound industrial system. Americans like to earn a living and those who believe in insurance like to buy it when they choose and from whomever they choose. Let our "liberals" get down to earth and stop flirting with false philosophies. Security cannot be achieved by compulsion. Even if it were possible it would not be worth the personal dignity and individual self-respect which would have to be sacrificed on the unholy altar of an entrenching bureaucracy. Americans would rather be free than secure.

—*Nebraska State M. J.*, November, 1945; quoted in *Illinois Med. J.*, December, 1945.

Industrial Study

WHEN the ODT ban on rail travel forced suspension of the Indiana State Medical Association's intensive two-day course in industrial medicine, formerly conducted each year in Indianapolis, a decentralized program was successfully undertaken by five of the state's county medical societies. One of them (Grant County) developed what has been described as the first "in-plant meeting" in the state. Working with the management of the Gas City plant of the Owens-Illinois Glass Co., the society arranged for an inspection of the factory by interested physicians. These men, says DR. LOUIS W. SPOLYAR, of the Indiana State Board of Health, "actually saw all operations and control measures used. After the tour, all phases of industrial health were covered at a round-table discussion. The physicians asked the management questions, and the management asked the physicians questions. One doctor remarked, 'Until tonight I had no clear-cut idea what my patients were talking about when they told me that they had a certain job to do, or that they were exposed to this or that material. Now I think I know.'"

—*Medical Economics*, January, 1946.

Unreported Tuberculosis

AN INSTANCE of misfortune due to failure of a plant physician to report a case of tuberculosis in a young woman applicant for employment came to my attention as illustrative of indifference on the part of an occasional physician to his obligation under the law. The pre-employment applicant had a child of tender age. The mother felt well, ignored the doctor's diagnosis, sought and obtained employment elsewhere, and within a year was diagnosed as advanced tuberculosis and the sanitarium prognosis is grave. What the plant physician did not realize and probably is not yet aware of is that the result of the report he should have sent would have been medical

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BUT... CHEMICALLY, Foille offers these noteworthy, additional, clinical advantages:

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5 gallons, gallons, quarts, pints, 4-oz., 2-oz. bottles

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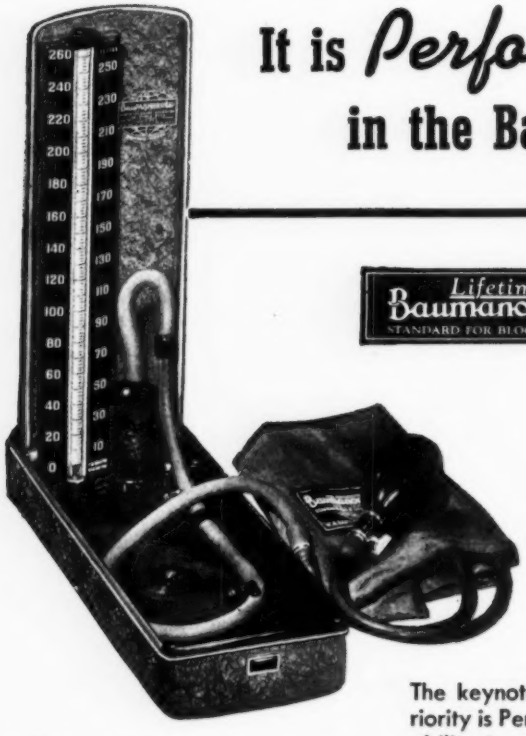

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and nursing follow up and offer of assistance by the Department of Health, persuasive education in the interest of patient and child, a probable early admission to hospital care, avoidance of infection of the child and a rehabilitated life of self-support.

—From "What Public Health Expects of the Private Physician," the John W. Bell Tuberculosis Lecture, by HAVEN EMERSON, M.D., Hennepin County Medical Society, December 5, 1945; published in *Minnesota Medicine*, January, 1946.

The Bigger the Lie . . . .

HITLER propounded the dictum that the greater the lie the greater was the likelihood of its being accepted as truth. Hitler is dead (we hope), but he seems to have left this diabolical axiom as a legacy to the uplifters of this country who to all appearances have no hesitancy in utilizing it in the attempt to cram government "benefits" down the throats of the American people. Medicine has proved itself historically as a proper desensitizing agent to socialistic allergic reactions. Notable "success" with it was obtained by Bismarck in Germany and by Lloyd George in Great Britain. Unfortunately these giants in the political and reform movements did not live to see the social and economic destruction wrought by the results of their initial experiments in paternalism. In an era before communism and fascism had raised their ugly heads, these gentlemen were considered statesmen whose self-appointed mission it became to have the government provide for the "common man." That the government, far from providing for, ultimately consumed the common man, never entered the super-mind of these social leaders. They were too much pre-occupied with the preservation and extension of their own existing powers to foresee the catastrophic effects of their panaceas on the future of their respective countries. Today in Washington there is a group which is doing its utmost to talk the American people into accepting "health security" through compulsory insurance. Aside from being too expensive for the benefits proposed, the program carries with it dangerous political implications, which like their European counterparts may bring destruction to our established social order. History seldom fails to repeat itself.

—From an Editorial in *Nebraska State M. J.*, February, 1946.

A Healthy Person

A HEALTHY person is a productive person. In these times of "easy money" even the lame and halt can earn a good living and consequently, people are more able to pay for the services received. This is borne out by the fact that in 1938 in McLennan County 44% of the babies were born in the hospitals while this percentage was 74 in 1944. Statistics also show that 87% of all babies delivered in McLennan County in 1938 were attended by physicians. In 1944 the percentage was 91. It has been said depressions are to some extent caused by the inability of the population to maintain a healthy attitude toward their status in life. A healthy person and a healthy attitude are synonymous. The medical profession, health department, and all facilities available to them should therefore be coordinated to make this the healthiest nation in the world.

—From "Vital Statistics in Public Health," by ALAN C. LOVE, in *Texas State J. Med.*, January, 1946.

Industrial Nurses, Reconversion

IT HAS been estimated that the number of industrial nurses in the United States has more than doubled itself since Pearl Harbor. Geared to wartime production, industry began for the first time to recognize the true value of the industrial nurse in cutting down absenteeism and keeping workers well. Throughout the war, the industrial nurse demonstrated more than adequately that a professional nurse, employed on a professional level at a professional salary, was an asset in any plant, large or small. Now, as industry begins its program of reconversion, can the profession persuade management to include plans for the industrial nurse as it maps out the future? All over the country industrial nurses are questioning, wondering what lies ahead for them. Has industrial nursing sold itself sufficiently to industry to retain the strong grip it held in the industrial health program during the war period? . . ."

—*Public Health Economics*, December, 1945, quoting *R.N.*, October, 1945.

The Right to Choose

NEITHER in Great Britain nor in America will the direction of

There is a Doctor in the House

—and it took a minimum of $15,000 and 7 years' hard work and study to get him there!

● Proudly he "hangs out his shingle," symbol of his right to engage in the practice of medicine and surgery. But to a doctor it is more than a right: it is a privilege — the privilege of serving mankind, of helping his fellow man to a longer, healthier, and happier life.

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More Doctors Smoke Camels

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(Should be compared ONLY with rubber reinforced elastic bandages.)

This Ace assures constant elasticity because it is reinforced with "Lastex" yarn. "Lastex" has the efficient qualities of rubber but eliminates the inefficient properties. Therefore, this Ace No. 8 — with "Lastex" has been designed to remain active and useful — comparatively unaffected by dealer storage, perspiration, oils, grease, and other solvents which may shorten the life and reduce the therapeutic value of bandages not reinforced with "Lastex".

* Reg. U. S. Pat. Off.

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labour be tolerated for long after the war. Every man in industry will demand the right to choose his own assistants as freely as he chooses his own wife, whilst the worker also claims his right to choose where he will work. The assignment of men to factories on the basis of "bodies" must inevitably result in disastrous inefficiency; it is probably the worst and most dangerous aspect of the totalitarian state. It denies freedom of choice of employment and of employees, and strikes at the fundamental principles of organization building. It puts into the hands of a few people the power to dictate the efficiency standards, the discipline standards and the ethical standards of industry and denies to industry the benefits that come from judgment in selection and skill and responsibility in the direction of labour. Freedom of competition, with unfettered private management of industry, is the only policy under which Australia can develop and advance. Government measures should be directed towards assisting industry and doing those things which private industry cannot do.

—From an Address, "Some Lessons Australia Can Learn from the Great Industrial Nations," by JOHN STOREY, Melbourne.

Toward Positive Health

DURING the war our objective was legitimate enough, but it was a limited objective, and it was essentially negative—avoidance and prevention of disease. Today our objective is broader—as broad as the future of the family and in consequence as broad as our civilization as we know it. Today our objective must be positive. It must go far beyond mere disease prevention to a concept of positive health—mental and emotional as well as physical. One of the first requirements for healthy family life and satisfactory interpersonal relationships is a basic interest on the part of young people. They must feel that they have a stake in the future, a stake worth striving for. We believe that young people today as a whole have this interest and this incentive. Despite the superficial pessimism we see about us, despite the inevitable personality splinterings which follow the catastrophe of war, our youth are *not* going to the dogs. They have the measure of their stake in the future. They have faith. But they also realize that faith alone will not be enough. They want and need scientific information and guidance.

—From "Time Is Short to Meet Our Obligations," by HOWARD W. ENNES, JR., in *Journal of Social Hygiene*, December, 1945.

Individuals with Rights

WE ARE hearing a great deal today about government control of medicine. Health is something very personal to each of us and most of us know that when something goes wrong we should go to our doctor to find out what is the matter. We usually wait and see what will happen. Diphtheria and smallpox prevention have been available for many years, yet many parents have not had their children immunized. It is extremely unlikely that the situation would be any different if medicine were under government control. No one can make us have a physical examination at regular intervals, no one can force us to eat a well balanced diet, no one can make us seek a sufficient amount of sleep, or keep our persons and homes clean. Yet, all of these things have a bearing on our state of well-being. We are all individuals with rights. Our forefathers came to this great country to escape intolerance and control by government. Medicine has sought during the ages to give the public the drugs, the treatment and the preventives which have been proved safe and sure. In no country has more been done than in our own United States. The medical care given our boys during this last War was most outstanding in its results.

—*Illinois Medical Society*, release.

United Fruit Company

TODAY our medical department comprises a line of base hospitals and medical centers scattered in the area between the Tropic of Cancer and the Equator, and between 70° and 90° West Longitude. The medical department's tropical organization now employs approximately 1100 people, including 57 physicians, 137 nurses, and 110 other specialized technical men and women. And it may be said that the entire tropical personnel, with relatively few exceptions, consists of nationals of the respective countries in which the company conducts its activities. Furthermore, this total of 1100 employees does not take into consid-

Undue Fatigue

AND ADEQUATE NUTRITION

That physical stamina is directly related to the general nutritional state is now considered axiomatic. Muscular efficiency and the ability to carry on without fatigue over long periods, depends not only upon the available supply of glycogen, but also upon adequate availability of B-complex vitamins, essential and other amino acids for tissue repair, and minerals.

To aid in producing the desired state of adequate nutrition, Ovaltine offers many advantages. Made with milk as directed, it provides a wealth of essential nutrients, as indicated by the table of composition. Three glassfuls daily raise the nutritional value of even the average diet to optimal levels. Ovaltine is enjoyed both as a beverage and a between-meal snack, hence the recommendation that this delicious food drink, either hot or cold, be included in the lunch box makes not only for palate satisfaction but also for good nutrition.

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Three daily servings of Ovaltine, each made of ½ oz. of Ovaltine and 8 oz. of whole milk,* provide:

CALORIES	669	VITAMIN A	3000 I.U.
PROTEIN	32.1 Gm.	VITAMIN B_1	1.16 mg.
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***Based on average reported values for milk.**

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FOR EFFECTIVE and PROTECTIVE

Nasal Therapy

UNUSUAL "DRYNESS" of the nose — whether in the initial stage of a cold, or as a result of unfavorable climatic conditions, or secondarily following the instillation of aqueous solutions — may be considerably relieved by the intranasal administration of an oil spray[2] or drops like *Pineoleum*. So, too, may the irritation induced by many strong saline or ephedrine solutions—with their tendency toward "pickling" the delicate epithelial lining and depriving it of its normal protective covering.[1] • Indeed, *Pineoleum* is highly favored for symptomatic relief of the nasal manifestations of coryza because of the soothing and protective action inherent in its liquid petrolatum base and contained ingredients. It has also been observed that *Pineoleum* with Ephedrine (with its *moderate* ephedrine content) helps reduce inflammation and improve ventilation and drainage without fear of undesirable turgescence, atony and bogginess.

FORMULA: *Pineoleum* contains camphor (.50%), menthol (.50%), eucalyptus oil (.56%), pine needle oil (1.00%), and cassia oil (.07%) in base of doubly-refined liquid petrolatum—plain or with ephedrine (.50%).

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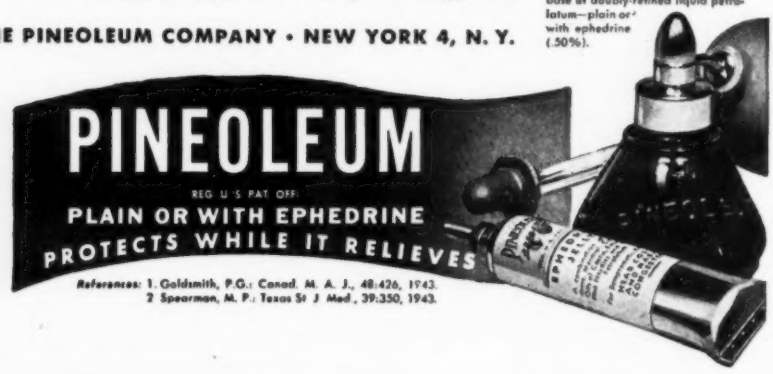


References: 1. Goldsmith, P.G.: Canad. M. A. J., 48:426, 1943. 2 Spearman, M. P.: Texas St. J. Med., 39:350, 1943.

eration the large force of laborers and supervisors engaged in the maintenance of water supply, streets and parks, garbage disposal, and similar work. In addition to the staff which operates the company's tropical division hospitals and other medical units in foreign localities, the company maintains medical offices or has medical representatives at all large domestic ports, and in peace times physicians are assigned to the passenger ships of the Great White Fleet. To give you a quick picture of what kind of business banana medicine is, here are figures covering our activities dur- a typical year—1944: There were approximately 700,000 dispensary treatments and 400,000 hospital days. On a per-employee basis, that is about four times the work load of New York city hospitals. The average daily number of patients in the company hospitals was about 1,100, and average daily dispensary treatments about 1,900. During the United Fruit Company's medical activity for almost half a century many of our doctors have carved important niches for themselves in the field of tropical medicine. In 1914, for example, our management in searching for a man to conduct the medical department was fortunate to secure the services of DR. WILLIAM DEEKS, formerly chief of the medical clinic of Ancón Hospital. In addition to his work in the general field of preventive medicine, DR. DEEKS pioneered in the study of tropical nutrition. Here was Middle America, potentially one of the world's greatest food producing regions, yet its inhabitants suffered enormously from malnutrition. DR. DEEKS made important contributions in this field, and during his association with our company he found time to continue these specialized studies in addition to his overall administrative duties. Another of the company's great medical personalities is DR. NEIL MACPHAIL, veteran superintendent of our hospital at Quirigua, Guatamala. This good doctor exemplifies the combined qualities of a practiced tropical physician with a friendly and sympathetic nature, which is an indispensable characteristic of the doctors of our medical staffs. I should like to mention also our retired medical director, DR. ROLAND C. CONNER, famed successor to DR. DEEKS as chief of the medical clinic of the Ancón Hospital, now known as the Gorgas Hospital—and for 18 years in company service. Our present medical director is DR. EDWARD I. SALISBURY, who, like so many other outstanding company medical men, served his internship in the Ancón Hospital, where he later became resident surgeon. For many years, he served as superintendent of various of the company's tropical hospitals. At one time he was called upon by the governor of the Canal Zone to take medical relief to Guatemala at the time of the great earthquake—Christmas, 1917. During World War I, he received a commission in the Navy and practiced orthopedic and plastic surgery at Norfolk Naval Hospital. Later he was director of Inter-American Affairs for the American College of Surgeons. His many and arduous tours of tropical inspection have made him thoroughly conversant with the company's over-all medical program and fit him admirably for his present broad executive duties. Working scalpel-to-test tube with these doctors who came to tropical America from northern climates are many outstanding Latin doctors. Some who immediately come to mind from long and friendly association are DRS. JUAN R. ARIZA and ARISTIDES AGRAMONTE, Cuba, ANTONIO A. FACIO, Costa Rica, JAIME DE LA GUARDIA, Panama and EDUARDO URUETA, Colombia.

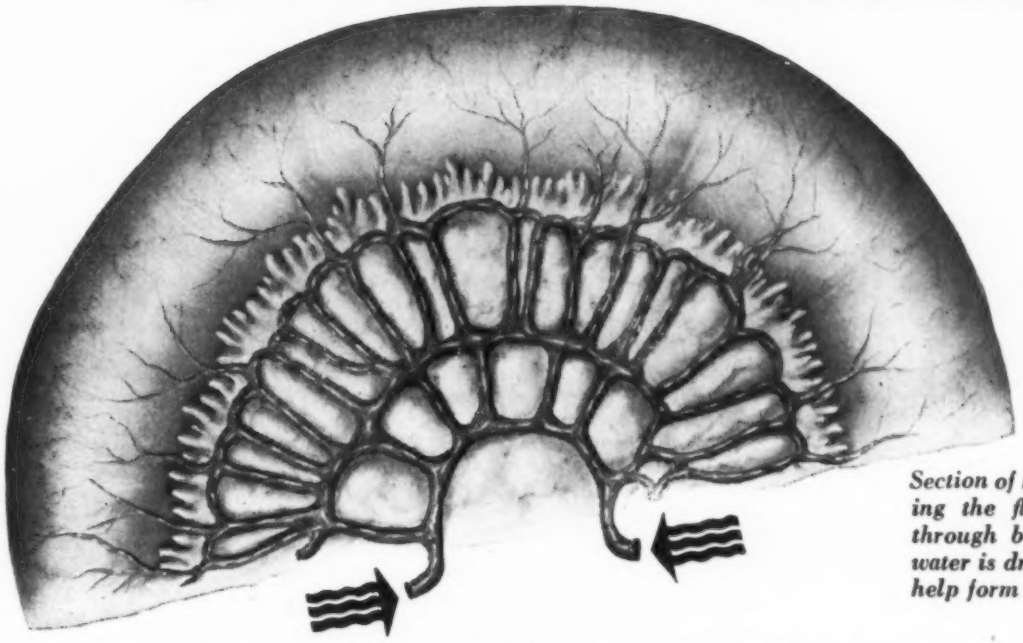
—From "Good Health to Middle America," an address by A. A. POLLAN, Executive Vice-President, United Fruit Company, New York, December 19, 1945.

Balanced Ration

MAY I close by giving you my favorite definition of a balanced ration? A balanced ration is simply an abundance of a variety of clean, wholesome food, which is not too much changed from its natural state, but is carefully prepared, attractively served and eaten in the midst of peace and contentment—with emphasis on milk, vegetables and fruit, and a boycott on the sugar bowl.

—THURMAN B. RICE, M.D., "Hidden Hunger," in *Monthly Bulletin*, Indiana State Board of Health, January, 1946.

PHYSICIANS PREFER *Gentle Pressure* IN LAXATION



Section of the mesenterium showing the fluid exchange system through blood vessels whereby water is drawn into the bowel to help form "liquid bulk."

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SAL HEPATICA is simple to administer, pleasant to take, and prompt in yielding a response. Its gentle pressure can be depended on to relieve constipation without irritation.

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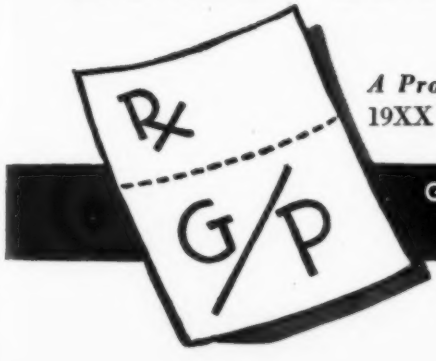

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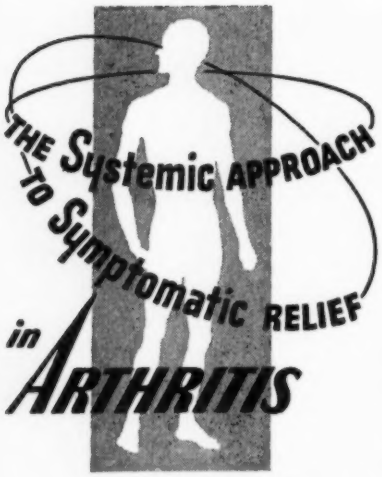

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INDUSTRIAL HEALTH and DISEASE

Venereal Disease

—What Stake Has Industry In Its Control?—

MORE and more New Jersey plants and their workers are paying attention not only to industrial health generally but to the venereal diseases in particular. Why is this so? What are the benefits to the plant and to its people from a venereal disease control program?

Here are the main ones:

To improve the physical condition of employees.

To tap a neglected reservoir of manpower—those who have the venereal diseases but who are under treatment. These persons are just as good workers as anyone else.

To place such persons in productive jobs that they can do without harm to themselves and without risk to their fellows—and in number these are most of the jobs in any plant.

To prolong the earning power of workers by increasing their life expectancy.

To aid health agencies in checking the spread of infectious cases.

The cost to a plant of a program aimed at these objectives will be repaid by reduced sickness and injury losses, and by more productive labor. This plan—the American plan for controlling venereal diseases—is promoted enthusiastically by manufacturers, union officials and employees. It is briefly this: (1) agree on a fair employment policy—and let both management and worker stick to it; (2) take blood tests and cultures; (3) let state and community agencies follow up on positive cases to bring them under treatment; (4) provide the facts about syphilis and gonorrhea, and make available to workers a "sick call."

1. *Fair-employment policy.* Blood tests must be given and interpreted by qualified physicians, and infected workers must be handled according to a fair employment policy. Should this not be done, management will be playing with dynamite, and workers will be tragically victimized. The policy should be agreed to by both management and workers in advance, and should be understood by all.

The policy is simply this:

First: Workers will not be denied employment, nor lose their present jobs, because they are found to have a venereal disease, provided they are taking or are willing to take treatment—if it is needed. Treatment may be properly insisted upon, unless the individual has already received adequate treatment.

Second: A qualified physician—not a plant manager, personnel director or other layman—should take the blood test, determine the stage of infection, if any, and decide according to the medical principles listed what sort of work the individual is to be placed on.

Third: Records of all physical examination findings—and especially of venereal diseases—are a matter of confidence between the worker and examining physician. They should be handled only by the plant physician or nurse and filed in the medical department—rather than in the employment or personnel divisions. In cases of venereal disease official health agencies are also involved—but no one else, particularly no plant supervisors or associates. In fact any violation of this principle is a violation of Chapter 103, Public Laws of 1945. Of special importance is the last point. The diagnosis of syphilis or gonorrhea is a person's own business. Modern medicine shows that 90% or more of the cases of these diseases are acquired through the most personal of intimate contacts, and are not transmitted through toilet seats or in any ordinary social or occupational contacts. So long as the person takes treatment and has not developed mental or neurological complications he is entirely capable of productive work and a normal life, and the state of his disease is a personal—not a company—problem.

2. *Blood tests and cultures.* Blood test for syphilis should be a part of all pre-placement and periodic physical examinations. Routine cultures for gonorrhea also are desirable wher-

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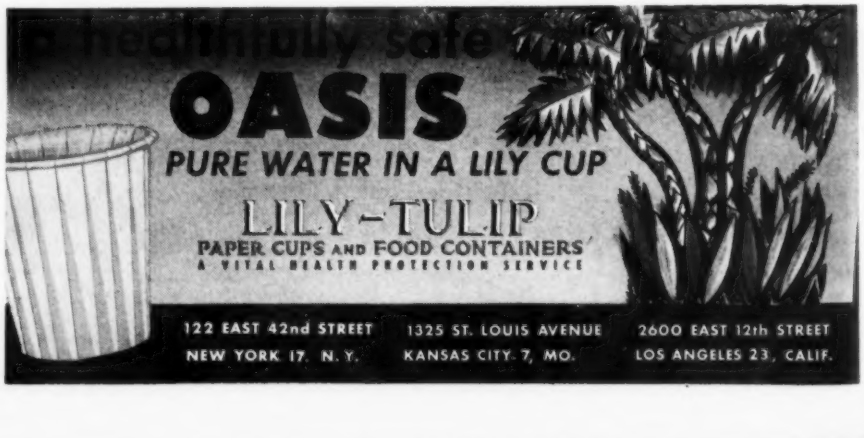
A Bulletin of the Bureau of Industrial Health, State of New Jersey Department of Health, J. LYNN MAHAFFEY, Director of Health.



ever employees are willing to submit to procedure. Only with these tests can a sure diagnosis be made. They are as essential to a complete physical examination as a blood pressure reading or a check-up for hernia. Every plant should give physical examinations and every such plant should include in them blood tests and cultures. It must be emphasized that a positive blood test, in itself, does not necessarily mean that additional treatment is needed.

3. *Assistance from official and community agencies.* The facilities of the serological laboratories of the Bureau of Bacteriology of the State of New Jersey Department of Health, Trenton, and of several municipal departments of health, are offered to industry for the free analysis of blood specimens. Culture service for gonorrhea is provided by the laboratory of the Bureau of Venereal Disease Control, State of New Jersey Department of Health, Trenton, and by several municipal laboratories. Specimens sent to either state laboratory should be accompanied by the usual identification slip with the notation that the report is to be sent to the State Bureau of Venereal Disease Control. Follow-up of positive cases will then be done automatically by official state and local health authorities.

Here is how the follow-up is done: Follow-up is a strictly confidential matter between the official health agency, the individual and his family doctor (or clinic). Neither the worker's plant nor his union is involved. Follow-up is initiated when the State Bureau of Venereal Disease Control sends a letter in a plain envelope directly to the employee at his home address pointing out that he should be under medical supervision, and enclosing a reply slip on which he can write the name of his family doctor or the clinic to which he plans to go. The family physician is then notified by the state of the results of the blood test and is requested to let the state know whether the finding has been confirmed by him, and whether the employee is under the physician's care. If the person fails to cooperate, or if the physician's reply indicates the need, a personal investigation by an official nurse is made. This entire procedure is thus kept confidential but it does provide treatment for those who need it.

4. *Information about venereal diseases.* It is important for everyone to know: (a) What the venereal diseases are. (b) How they are spread. (c) How to protect against—Infection; Crippling effects of an already acquired infection. (d) Why self- or drug-store treatment is dangerous.

As part of its information program, the plant medical department can well encourage any employee who has a suspicious sore or lesion to come in and let the plant physician examine it. Such a "sick-call" can be a true service. Like the rest of this program, it can be handled confidentially throughout. The doctor can either reassure the worried employee that there's nothing wrong—or he can refer the person to his doctor (or a clinic) for diagnosis.

The State of New Jersey Department of Health can supply free pamphlets, posters, speakers, motion pictures and information—either directly to industrial workers or worker groups, or indirectly through the plant medical staff. For the latter group, a program of information is a legitimate and worthwhile activity in preventive health.

MEDICAL principles for guidance of plant physicians when employing persons with syphilis and gonorrhea:

1. A person with syphilis or gonorrhea should agree to place himself under competent medical management while in the employ of the plant. (Exception: adequately treated late syphilis.)

2. If the stage of the disease is infectious, employment should be delayed or interrupted until a non-infectious state is established through treatment. (This requires no more than a few days.)

3. When syphilis is in a latent or tertiary state employment should not be delayed or interrupted—except when disability from the disease exists which would endanger such individuals or their fellow workers. For example, those having syphilis of the heart or nervous system should not be exposed to such physical stresses as extremes of temperature, unusual exertion, or abnormal atmospheric pressures.

4. When gonorrhea is present, employees should work under special medical observation during treatment with sulfonamide drugs. This is because a decrease in visual acuity and slowing of reflexes are sometimes caused by sulfonamide drugs. It is preferable, however, to treat gonorrhea with penicillin. With this drug 97% of cases can be cured in a few hours, and there is no toxicity.

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5. Workers who develop disabling manifestations as regards their present jobs should be transferred to other jobs that they are physically capable of performing — they should not be terminated because of the venereal disease.

6. Syphilitic workers, receiving arsenic and bismuth or mercury should be excluded from areas where there is an exposure to toxic chemicals that affect the liver or kidney, as for example, benzol, chlorinated hydrocarbons, and many others. Exposure to such industrial materials may aggravate the effect that arsenic and heavy metals have on the liver and kidneys in the case of certain individuals.

7. The plant physician should determine from his findings on physical examination what sort of job in the plant each person is physically qualified to carry on. This procedure should be followed with all placement tests for workers, but it is especially necessary when dealing with syphilis and gonorrhea because of widespread misconceptions that laymen hold about these diseases. Many plants have determined for each of their jobs the physical capacities that a worker must have to fill them. Some jobs may for example require good color vision, while others may not; some may require absence of hernia, while in others this is of no importance; some may demand a certain physical stature, while others do not—and so on. When a physical examination is made, the physician assigns a certain code symbol to the individual which may or may not restrict him to certain lines of work. The employment manager can then assign the individual to any of a group of jobs with assurance that he is physically able to perform them, but without knowing what the physical limitation of the worker is.

8. A 24-page mimeographed "Manual of Venereal Disease Practice" (1945) prepared by the Bureau of Venereal Disease Control, State of New Jersey Department of Health, Trenton, is available on request.

Industrial Hygiene in New Zealand

—From "A Report to the Director General of Health," by J. M. Davidson, M.D., D.P.H.—

BECAUSE of the types of industry which have established themselves in New Zealand, specific industrial health risks of a toxic nature are relatively few, but such as there are assume an added importance because they have, up till now, frequently passed unrecognized. Various poisonous substances and proprietary products, some of the latter of undisclosed composition and dangerous to handle, are to be found in use, and even where overseas manufacturers have taken the precaution to enclose with their products concise and informative cautionary literature, insufficient attention is paid to the health risks involved. This is no doubt unintentional as far as the user is concerned, and to some extent inevitable, but these very facts make it all the more necessary that factory inspectors should be given every possible opportunity of acquiring knowledge regarding, and exercising close supervision over, processes involving specific health risks. It must be emphasized, however, that the risks which arise from exposure at work to toxic substances would almost all disappear if the level of general hygiene in industry were as high as it should be. Much the commonest and most dangerous route of absorption of poisonous substances in industry is via the lungs, and it is obvious that when industrial hygiene attains the level at which *all* dusts and *all* fumes generated in an industrial process, whether toxic or not, are captured at their point of origin, it will not matter a great deal whether the noxious agent is harmful in a concentration of 1 in 1,000,000 or 1 in 1,000. And if first-class washing facilities are immediately available, substances which are poisonous or irritating to the skin will lose much of their danger. It is unnecessary to record here evaluations made of specific health hazards met with during this survey, since details of these are now available in departmental records, but it is worthy of note that the following types of health risk, among others, were encountered: metallic poisoning (lead, mercury, arsenic, manganese, cadmium); exposure to asphyxiant gases (carbon monoxide, carbon dioxide, hydrogen cyanide, etc.) and to other fumes and gases (hydrofluoric and other acid fumes, benzol and other coal-tar derivatives, petro-

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"The therapy of a majority of the cases of contact dermatitis encountered in industry", according to the noted dermatologist, Dr. Frank C. Combes[1], "requires no further medication than the intelligent use of a *good buffer solution such as Liquor Aluminum Acetate (Burow's solution)* . . . and a *good crude coal-tar paste.*"

His preference for wet dressings solution is **Domeboro Tabs** ("widely used in industry", particularly by Parkes[2] at Curtiss Wright for cutting-oil dermatitis)—because it is "a convenient tablet which, when dissolved in water, releases a *lead-free aluminum acetate in appropriate dilution,*" with a substantial percentage of boric acid.

The *crude coal-tar paste* used at New York University, according to Combes, "is manufactured commercially under the name **Daxalan**"—which has been found *superior to distillates, filtrates and pastes containing liquor picis carbonis.*

It must be properly applied for "optimum benefit", and Combes advises thinning with **Domolene** for spreading over a large area —because in his judgment its hydrophilic ointment base "does not materially lessen the therapeutic efficacy of the paste."

With tissue repair under way, and only erythema remaining, the use of **Domebore Ointment** (each ounce of which, in a special hydrophilic base, possesses the therapeutic action of one Domebero Tab diluted in a pint of water), permits a quicker return to work, while healing is promoted by its efficient topical action.

(1) Combes, F. C.: Indus. Med., July, 1944.
(2) Parkes, Morey: Indus. Med., January, 1944.

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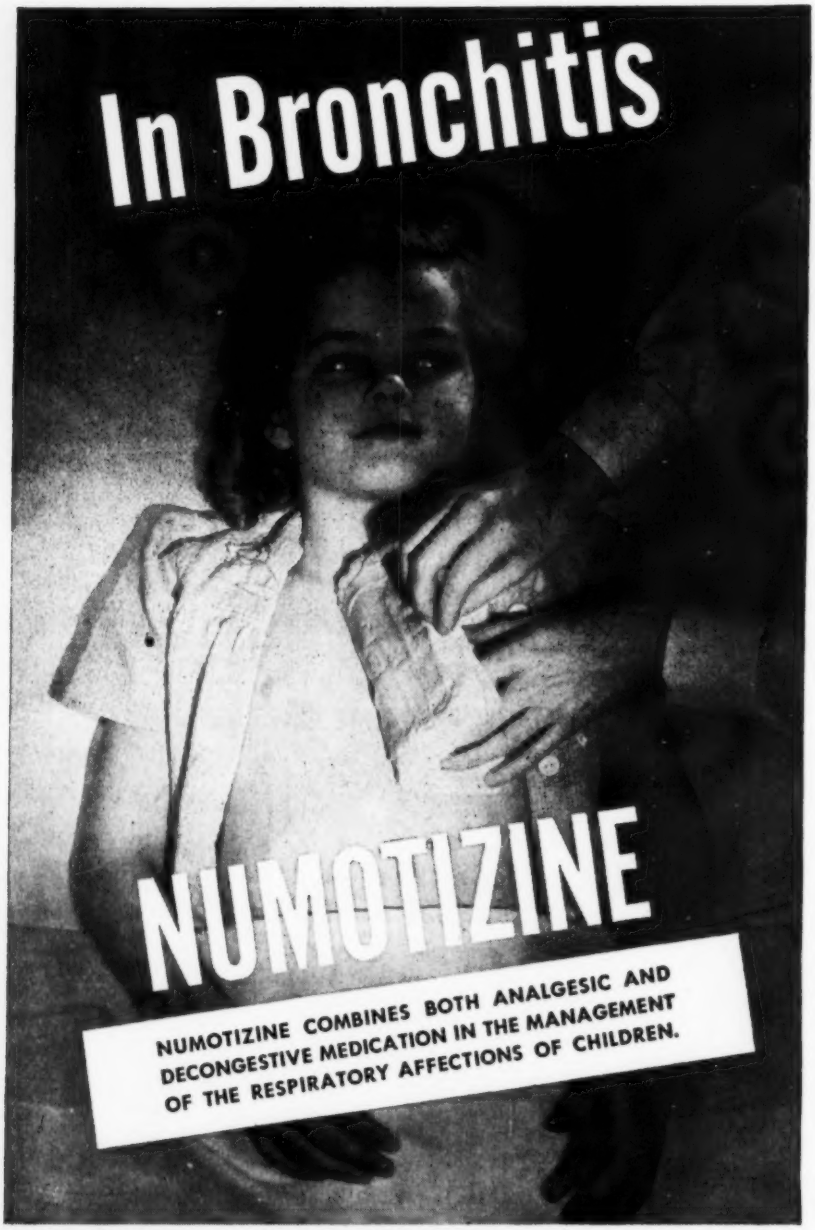
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leum distillates, alcohols, chlorinated hydrocarbons, etc.); exposure to various dusts (organic and mineral, some of the latter, such as silica and asbestos, capable of causing specific chest diseases); exposure to a variety of skin irritants (acids, alkalis, mineral oils, etc.), some capable of causing skin cancers (arsenic, pitch, etc.); and, finally, exposure to x-rays and radio-active substances capable of causing severe burns, blood and bone changes, and occupational cancers. The *variety* of risks noted is interesting.

Medical Supervision: There are already in New Zealand a few factories in which progressive and far-seeing managements have installed trained nurses in well-appointed ambulance-rooms, and a smaller number in which part-time medical officers attend regularly at the factory to examine, advise, and treat workpeople. Here we have the nucleus of a medical service for industry. But it is not yet sufficiently recognized that there is a greater need in industry for a health service than for a medical service. The system of social security in force in New Zealand aims at providing outside the factory whatever form of medical treatment a person may require, but makes no *ad hoc* provision for the supervision of the health of the industrial worker at work. The result is that while employers contribute large sums to help provide for the treatment of their employees, they find that if they wish to make provision for medical supervision at work which aims at keeping their workpeople well, they have to provide this at their own further expense. It is not surprising, therefore, that few works doctors have so far been appointed, and that where a doctor has been appointed his duties are directed towards curative rather than preventive work. Only a very few firms, and these not the largest, have made any individual arrangements for medical supervision; the others, both large and small, have not yet appreciated the advantages which accrue from regular, even if infrequent, skilled medical supervision. Industrial health is a wide subject requiring special study, and its maintenance calls for the intelligent application of the newer knowledge in matters of hygiene, toxicology, nutrition, epidemiology, psychology, etc. This is the purpose of medical supervision — to ensure the provision of satisfactory environmental conditions at work; to maintain physical and mental health at full efficiency; to prevent sickness and alleviate its consequences; and to minimize the effect of injury and promote rehabilitation. But this is, to practically all New Zealand medical men and nurses, a new field, and so far little has been done to train these people or to encourage industry to make use of their services. This, however, is not the main reason why industry has failed to appoint works medical officers. The main reason is the failure to disseminate the required knowledge among industrialists. There is much that a medical man (or woman) can do in a factory without special training. There is the early detection of actual disease as well as preventive measures to limit its spread, medical examination of entrants, and periodic medical examinations of other workpeople (including perhaps routine x-ray chest examinations), teaching of first aid, and education of workpeople in matters of general and personal hygiene, liaison with outside medical services, etc. Then there is the keeping of proper health records and their analyses, which can be very helpful in the detection of unhealthy and dangerous processes, etc. Case finding is the first step in trying to eradicate any particular type of illness, and accurate record-keeping is the first step in recording ill health. . . .

First Aid: The standards of first aid and of first-aid equipment in New Zealand factories are low, and even where reasonably good equipment is provided and a person trained in first aid is available it is uncommon to find a suitably placed "first-aid post" where washing facilities, etc., are available, although in some of the large factories ambulance-rooms are now provided. First-aid equipment, when there is any, consists usually of cotton-wool, perhaps some dirty, much-handled boracic lint, a bottle of antiseptic of some sort, and a stray bandage, the whole contained in a dirty box, clothes-locker, or cupboard, probably along with a teapot or perhaps a pair of working-boots. Individual sealed sterile dressings are unknown, and I have more than once seen wounds dressed in factories where the only materials available were far from aseptic. This is all the more surprising when one considers how the paramount importance of good first-aid has been stressed over and over again during the war years. There is also

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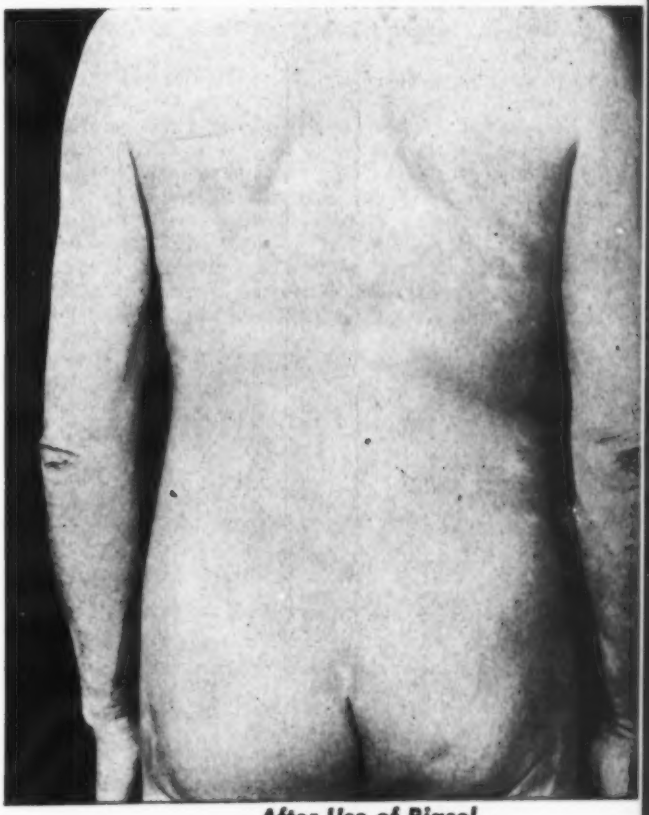

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RIASOL for PSORIASIS

a tendency to refuse first-aid treatment at work for wounds or injuries sustained elsewhere than at work, and this applies even in the largest engineering works in the country. It is not surprising, therefore, that much working-time is lost unnecessarily as a result of attending at hospital or doctor's rooms for the treatment of minor injuries, or for sepsis, the result of neglecting such injuries. And there is little record kept of such lost time, except for purposes of wage-regulation. Record-keeping on health matters is as much neglected in large factories as in small, and even where there is medical supervision record-keeping is faulty. Frequently no record at all is kept of first-aid rendered. . . .

Medical Supervision: Medical supervision in industry means a great deal more than a glorified casualty service. It should imply, as well as the organization of a sound first-aid service, the close supervision of the health of the individual worker at work, careful attention to his environment with control of specific and other health hazards, health education amongst employees, and an acceptable liaison between the factory and outside health services. Industry has at all times a moral obligation to employ the partly fit as well as the fully fit, and skilled medical help is required not only to guide the rehabilitation of ex-servicemen after the war, but to ensure at all times that the new entrant to industry is employed only within, but at the same time up to, the limits of his capacity. It is not only the large firm which requires, or can afford, medical supervision. The need is even greater in the case of the small firm, and it is not going too far to say that all firms, however small, should try to provide some measure of medical supervision, even if it were no more than a quarterly visit from a medical man with some knowledge of industrial organization and special experience in industrial medicine and hygiene. But the medical man must have that knowledge and experience which can be gained only from a close and intelligent study of actual working-conditions. To have a doctor "on call" is not enough. What is wanted is supervision of the supposedly fit workman at work, and of the conditions of work.

Industrial Nursing: Industry offers an absorbing career to the well-trained nurse with experience of public health work. Where there is a sufficient number of employees to warrant full-time employment, a nurse may be able to do a great deal more good than a part-time doctor. This is particularly the case where many women are employed or where the majority of the employees are women. Elsewhere and in smaller factories suitably trained visiting nurses might usefully be employed. . . .

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CYRIL M. TOWNSEND,
Staff Architect, Lockheed Hydraulic Brake Co., Leamington Spa, England

Most big factories in Britain have their own clinics for treating accident cases, providing remedial treatment like ray therapy and taking preventive measures to keep their workers in good health. The Lockheed Hydraulic Brake Co., of Leamington Spa, which was expanded for wartime work and includes several subsidiary works and government built factories, has recently completed an up-to-date building to provide full medical and welfare facilities for its workers. The firm's architect gives the following details about this building.

The building of the medical center of the Lockheed Hydraulic Brake Company was completed some 12 months ago, to provide for the company's employees full medical and welfare facilities. A resident doctor, who acts in the capacity of chief medical officer for the firm, which included shadow factories and subsidiary companies, is on the staff, and a visiting dental surgeon attends the Works daily.

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infestations are treated, and a dark room equipped with examination lamp for the removal of impacted foreign bodies from the eye.

The building was designed in the firm's architect's office and built by the company's own building department and specialist sub-contracting firms under the control of the staff architect, on a site facing south and overlooking the bowling green, immediately adjoining the main factory area, with playing fields at the rear of the premises.

The plan as completed to date is for a short-term policy, provision being allowed for a future extension as a wing on the west side, at which time the finalized scheme will provide for a separate male and female surgery, and extended physiotherapy and other sections.

After settling the general policy, a list of requirements was drawn up and the plan designed to include the following:

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A private office for the matron off the main entrance hall and in close proximity to the present—and what will be the future—surgery are provided in the plan, together with a nurses' room with small bathroom and water closet.

For the present, the future surgery is divided by a soundproof partition forming male and female rest-rooms, and what will ultimately be the female rest room opening off the surgery is now being utilized as the therapy-treatment room. A small kitchenette with sink, store cupboards and gas cooker enables the staff to provide hot drinks or other necessities to temporary patients.

All ceilings are finished white for maximum light reflection. Flush panel internal doors fixed to solid frames are painted green to match wall tiles. Built-in benches, padded, and covered with green leather cloth run round the walls of each waiting-room, and a bell push control with visual signal panel indicates which department is ready to receive the next patient.

There is a 76 cm. drop from the access road to existing ground level, and this condition was utilized for the construction of a service duct running below the central corridor, and also a subsidiary duct running the full length of the building on the north wall. A branch auxiliary duct runs beneath the dental surgery, and pockets offset where required enable direct connections to be made to radiators on back wall of surgery and similar locations. These ducts carry all water, heating, gas, and other supplies to the various equipment and units and lead from the basement heating chamber in which there is a compartment housing the switch gear, heating booster pump and gas meter.

Heating of the building is by means of low-pressure hot water from an independent coke-fired boiler with hospital and wall-type radiators, a domestic hot water supply to baths, lavatories, sinks, etc., from a large capacity calorifier located in the basement and heated from a small boiler independent of the main heating.

The dental unit is located immediately above the auxiliary duct, which is offset at right angles from the main duct and carries all supplies and wastes from this unit, together with those for the dentist's surgery sink.

The surgery, doctor's room and public rooms are lighted by fluorescent tubular lighting and the chokes located in service duct; all conduit for these, telephone wires, call bells, etc., are entirely concealed. The conduit to lights were laid direct on top of the precast concrete roof beams and screened in during construction, main intersecting points having junction boxes with raised kerbs above roof level with water-tight covers for ease in drawing electric wires. This was done to eliminate the necessity of plugging and fixing to roof beams and having surface conduit running across ceilings. Lights in corridors have dual lamps, main light from suspended bulbs, and pilot lights above for night use. Illuminated glass signs indicate the function of each room.

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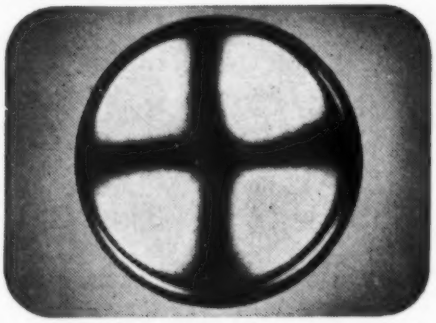

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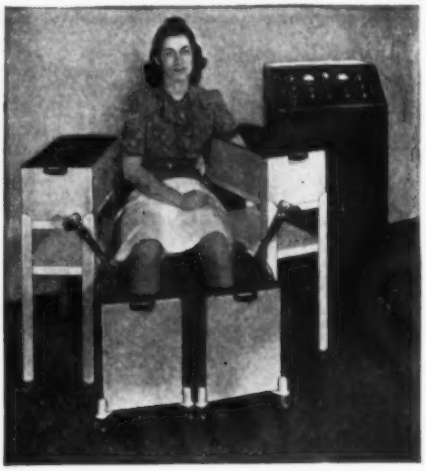
*Kovacs, R.: Electrotherapy and Light Therapy, 1942, p.153.



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PATIENTS HAVE FAMILIES, by HENRY B. RICHARDSON, M.D., New York, The Commonwealth Fund, 1945.

THE DOCTOR'S JOB, by CARL BINGER, M.D., New York, W. W. Norton and Company, Incorporated, 1945.

THESE books by physicians who, with this commentator, received their A.B. degrees at Harvard in 1910, are of especial interest when analyzed on the basis of experience in private practice. It seems that neither Richardson nor Binger appreciated the importance of the patient until many years after they received their M.D. degrees, at Harvard Medical School in 1914. They discovered the importance of the patient only after five to 10 years in private practice. Both these physicians served as internes in Boston hospitals and as medical officers in World War I abroad, and studied abroad and at Johns Hopkins. Richardson then practiced as an assistant to an internist, a private practitioner in New York City, for about three years after which he became a full time clinician, investigator and teacher at Bellevue Hospital and Cornell Medical School. In 1938 he started private practice as a specialist in internal medicine.

Binger had no experience in private practice prior to his joining the staff of the Rockefeller Institute shortly after he got out of the U. S. Army in 1919, and he continued there as a full-time investigator and clinician until about 1932 when he entered private practice as a psychiatrist who gave some attention to the field of internal medicine.

This commentator graduated from Rush Medical College in 1913; had an internship in a Chicago Hospital and practiced with his father, an internist, from 1915 to 1917, except for some four months of active duty as a medical officer with the Illinois National Guard in 1916. He served as a Captain in the Medical Corps of the U. S. Army from the first of September, 1917, till the end of August, 1919, and then started the private practice of internal medicine in which he has been engaged ever since. Except while he was in the military service, he has been a voluntary teacher of medicine and has engaged in a limited amount of clinical investigation. Binger and Richardson have continued to teach and engage in clinical investigation since they started in private practice.

These books bring out clearly how little attention is paid by most full-time teachers, investigators, and clinicians to anything except the diseases in which they are interested. Yet on entering private practice they soon learn the importance of the person who is ill and the relationship of heredity, ignorance, poverty, housing, nutrition, habits of life, domestic, economic and social problems; the type and conditions of employment, etc., to health, and to the incidence of disease, its progress and response to treatment.

Richardson, the internist, is more impressed by the effects of membership in a family, of housing, nutrition and economic and social problems on the patient; Binger, the psychiatrist, by the effects of mental processes on health and disease. They have not learned that the family doctor, no matter how little he may know of the science is a most competent specialist in the art of medicine; that his intelligent care of the patient and the family makes his services more effective and satisfactory than are those of specialists interested chiefly in disease and neglectful of the person who is ill.

Though their relatively short experience in private practice has impressed them with the importance of the individual who is sick, Richardson and Binger continue to think as mem-

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*Ant, M., N. Y. State Jour. Med., Sept. 1, 1945.

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By BERNHARD J. STERN

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223 pages *1946* *$1.50*

Nursing in Commerce and Industry

By BETHEL J. McGRATH, R.N.

This guide to the duties and responsibilities of the industrial nurse covers all phases of her work, her place in the organization, her relationships with physicians, officers, and employees, her role in occupational and non-occupational illnesses and accidents, records and reports, the physical facilities of the nursing service, workmen's compensation, rehabilitation, and many other problems. The manual was prepared for the National Organization for Public Health Nursing. A practical handbook for industrial nurses, and useful also to industrial physicians and surgeons, and to company executives who are concerned with the health of employees.

368 pages *1946* *$3.00*

THE COMMONWEALTH FUND
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bers of a group intent on the study of disease. Richardson proposes for the solution of the, to them, new, problems presented by the patient, the addition to the medical group of family and medical social workers, psychiatrists, psychologists; Binger specializes in the newest field of practice "psychosomatic medicine." They do not seem to understand that such additions would merely complicate things for the patient and the family doctor, and increase the costs of illness.

They have not learned that the real trouble is that medical schools have been turning out general specialists taught about disease by men interested in learning more and more about a particular limited field of medical practice who pay little or no attention to the patients as a whole. The medical student thus learns much of the science of medicine but almost nothing of the art. He is taught to consider the family doctor as just a "general practitioner," a jack-of-all-trades and master of none. Those teachers interested only in disease have not learned the truth of a statement made by Sir William Osler: "The family doctor is the man behind the gun, who does our effective work. That his life is hard and exacting; that he has but little time for study and less for recreation; these are the blows that may give finer temper to his steel, and bring out the nobler elements in his character."

Doctors Richardson and Binger, though both of them, like the writer, come from medical families, have not in their brief experience in private practice as specialists learned how much more effective their services are when they have as patients several members of one or more generations of a family than when rendered to an isolated individual. They have learned that patients have families and that it is the doctor's job to evaluate the relationship of domestic, economic and other personal problems, of nutrition, heredity and environment on the health of the individual patient; but have not learned that the patient is an individual, not just an abstract member of a collectivist society. Therefore they advocated un-American collectivist remedies which, where tried, have provided impersonal medical care, much inferior to that provided by clinicians who, in their concentration of the study of disease, have neglected the patient. Doctors working under compulsory sickness insurance plans such as they advocate pay little attention to disease; less to the individual who is ill; and totally neglect the social, economic, domestic or nutritional aspects of the case. They confine themselves to the treatment of symptoms and the filling out of the reams of reports required by the ruling bureaucracy.

It seems strange that two physicians, eminent in the science of medicine, should support the most unscientific political panacea for the solution of the health problems of the people of all farms, cities and towns of the 48 states, territories and island possessions of the United States of America, contained in the Wagner-Murray-Dingell Bill (S. 1050). How can men who would be among the last to advocate any totalitarian panacea for the treatment of all diseases favor this "cure-all," which bans experimentation and the use of the methods of science, for the solution of all of the social, economic, and psychosomatic problems of illness?

Before he had been engaged in private practice for 10 years, the writer urged that all graduates in medicine should serve for at least one year under a family doctor, that they might learn the importance of the person who was ill and of the relation of domestic, social, economic and other problems to health and disease.

In 1930, he wrote an article emphasizing the important contributions which the family doctor, and he alone, could make to medical progress. Five or six years later he suggested that medical schools should concentrate on the education of family doctors and cease turning out general specialists. He also learned long ago that the successful group clinics, notably the Mayo Clinic, were successful not because they engaged in private group practice; not because they included social workers, sociologists or specialists in psychosomatic medicine in their diagnostic teams; but because they made available the services of qualified specialists in the various fields of medical practice who were not allowed to forget the importance of the individual who was sick and who always cooperated as closely as possible with the family doctors on whom they had to depend for continuation of treatment after the patient returned home.

The writer has also been impressed

by the fact that admissions to free out-patient clinics and city or county hospitals rise steadily when times are bad but fall off rapidly when times are good. People who can afford only the impersonal clinic or charity hospital services when unemployed, seek private hospital accommodations and the services of a physician in private practice as soon as they go to work. The private practitioner who considers the patient at least as important as the disease he may have renders more satisfactory and effective service even though he is not as able a scientist as is the clinic or charity hospital clinical teacher.

Anyone who has observed the health records of Washington, D. C., of the Esquimaux, of Reservation Indians and other wards of the Federal government, knows that recently published reports on the quality of the medical services furnished by the Veterans' Bureau show that veterans received medical care no worse and no better than that furnished by other Federal agencies. Remember that in times of war, medical care for the men and women of our armed forces is supplied by private practitioners who have voluntarily offered their services.

If Doctors Richardson and Binger are permitted to continue in private practice for another 10 or 15 years, they will undoubtedly agree with the writer that measures such as S. 1050 will make the practice of medicine so unattractive that the more able youngsters won't even try to enter medical schools; that the inferior impersonal medical services it would make available would not satisfy the people who would soon discover that instead of getting "something" for "nothing," they would be getting "nothing" for more than they expected to pay for "something." They will have learned that health and sickness problems cannot be solved by an nation-wide panacea; that such "cure-alls" standardize medical service, prevent change and indefinitely postpone experimentation to develop programs which will accomplish the objectives claimed for the bill introduced by Messrs. Wagner, Murray and Dingell in Congress. Let us pray that the Congress will not force the people to depend on the services of government doctors who will have time only for making reports and treating symptoms, who will pay little attention to the causes of ill health and less to the patient, his family, the social work or the specialist in psychosomatic medicine. This would be the case even if the Social Security Administrator permitted the Surgeon General of the Public Health Service to order government doctors to treat those assigned to them as if they were independent, self-reliant private patients, not just the fearful dependents of an omnipotent Social Security Administration.

I am sorry that Henry Richardson and Carl Binger have not noted the fact that European medicine has been deteriorating ever since Bismark instituted health insurance in Germany in the 1880's as a political stratagem which has been copied by opportunist politicians all over the world. Under the rule of bureaucrats, practice of medicine soon became so undesirable that men of ability no longer entered medical schools. As the European medical leaders, trained before state medicine was imposed, died off, there were none as able to succeed them. Naturally, American physicians and surgeons, free men with fearless minds, became the leaders and the second and third rate Europeans had to take a back seat.

Do the American people wish to have imposed upon them, in the guise of "health security," a system that in some 60 years caused the German medical profession to deteriorate to such an extent that its services are now said to be 20 years behind those available to all in the U.S.A.?

The un-American, illiberal, anti-progressive, revolutionary totalitarian "cure-all" proposed by Messrs. Wagner, Murray and Dingell (S. 1050) must not be permitted to become the law of the land.

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2. Clinical Investigation and the Practitioner of Medicine. *Illinois M.J.*, February, 1930.

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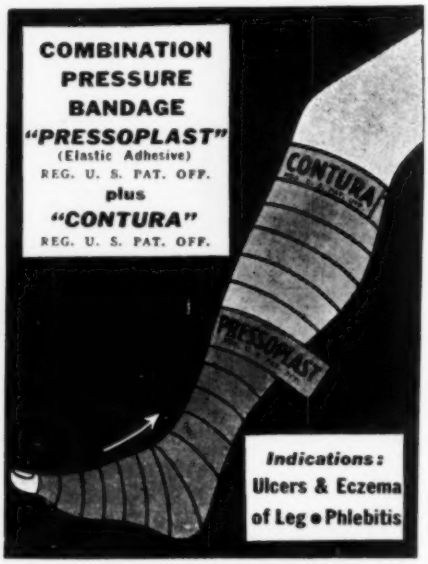

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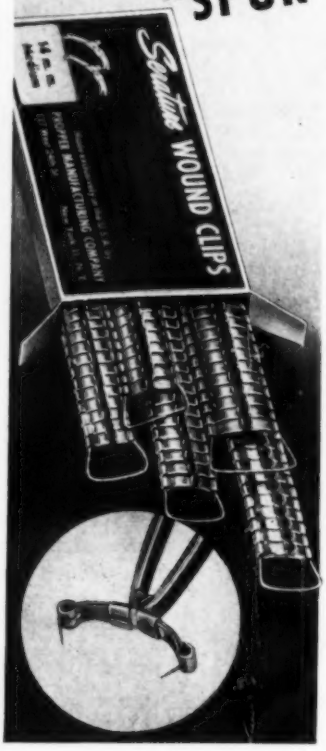

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4. The Education of the Family Doctor. *Clinical Medicine and Surgery*, 42:396, August, 1935.

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Review by
JAMES T. CASE, M.D.

MASS RADIOGRAPHY OF THE CHEST, by HERMAN E. HILLEBOE, M.D., Medical Director, Chief, Tuberculosis Control Division, U. S. Public Health Service; Professorial Lecturer on Tuberculosis Control, George Washington University School of Medicine, Washington, D. C.; and RUSSELL H. MORGAN, M.D., Surgeon (R), Medical Officer-in-Charge, Radiology Section, Tuberculosis Control Division, U. S. Public Health Service; Assistant Professor of Roentgenology, Absent on Leave, The University of Chicago. Two hundred and eighty-eight pages and 93 illustrations. Chicago: The Year Book Publishers, Inc., 1945.

THERE is today a rapidly spreading public interest in the matter of chest surveys for pulmonary tuberculosis, the culmination of several years of public education as well as general adoption of chest x-ray records of all members of the armed forces of the United States. This welcome book is a ready-reference manual which begins with a brief history of mass radiography of the chest, using 14 by 17 inch paper film, then 35 mm films in single exposures, and finally 4 by 5 inch stereoscopic photoroentgen records. The broad objective of tuberculosis control involves the principle that the development of infectious cases be maintained at a lower rate than that at which infectious cases are isolated for the prevention of spread of the disease. The authors detail carefully the objectives of tuberculosis control, the preliminary planning for mass radiography in any community, the equipment necessary and available at this time, physical and technical factors, and finally the interpretation. The latter is illustrated by nearly a hundred copies of illustrative cases.

The authors comment that the development of mass radiography has proceeded at a truly amazing pace. A number of factors have played a part in the development of mass radiography, including more efficient x-ray transformers, x-ray tubes, more brilliant fluorescent screens and sensitive films, more rapid lenses, and not the least has been the development of the Morgan photo-timer, an invention of one of the authors of this book. Mass chest radiography has come to stay and will play no small part in the medical department of the industrial army of the future as well as in the preservation of the health of the civilian population in general.

Cold Prevention Drive

DR. J. R. ROSSI, head of the medical department of the Elevator & Air Conditioning Divisions of Westinghouse Electric Corporation at Jersey City, New Jersey, is directing a cold prevention campaign for 100 employees. The program, made available to all employees prior to the "cold season," utilizes the oral vaccine method. Two products are being used to determine the effectiveness of the method in industry. The cold prevention program was first launched two years ago to cut down wartime absenteeism. Individuals subject to colds appealed to the medical department for relief and DR. ROSSI used the oral vaccine method to combat the colds, after observing in private practice that this method reduced time lost due to this cause. The present program was made available to all employees, the industrial relations department providing the serum and urging participation in the drive. Each participant is provided with the capsules and written instructions on their use.

A LOT of people want to be cared for and a lot of people want the jobs of taking care of those who want to be cared for. I would rather have a hundred per cent of my wages and my liberties, and take care of myself, and then I would not have to take care of the fellow who is taking care of me." —*Detroit Medical News*

Child Service Centers

—An Experiment in Services to Employees—

IN EARLY 1943 Kaiser Company, Inc. —Portland Yard, and the Kaiser-operated Oregon Shipbuilding Corporation at Portland employed approximately 12,000 women workers. One of the most prevalent reasons for absenteeism, lateness on the job, and early check-outs among this women worker group was the problem of child care. Portland's existing child care facilities were not adequate for the children of so large a group of women workers nor were they conveniently located or able to adjust their hours to those of the shipyard workers. To hold these 12,000 women on the job and recruit the additional women workers needed to meet increased war production demands it was essential that a better answer to the problem of child care be found.

The shipyard management, accordingly, drew up plans for two Child Centers to supplement the existing community facilities. It proposed that these new Centers be exclusively for the children of parents employed in the two shipyards. The Centers were to be located, not out in the community but at the entrance to each of the two yards, convenient for workers en route to and from work. They were to be large Child Centers to accommodate approximately 375 children each. It was proposed that the Centers be operated by the shipyards with the cost of operation borne jointly by the two companies and by the parents using the service. These plans were approved by the U.S. Maritime Commission and funds were granted by the Commission for the construction of the Centers and for their initial equipment. The buildings were completed in November, 1943, and have been used by children continuously since that time.

The Centers were built for preschool children; their main enrollment is of children between 18 months and six years of age. This age range has been extended, however, as the needs of women-workers have become better known. Groups for children six to 12 years have been organized on swing and graveyard shifts, on Saturdays and Sundays, public school holidays, and during the summer vacation period—the times again when community facilities were not adequate.

Although intended primarily to serve women workers, the Centers are open to the children of any shipyard employee. Most children are regularly enrolled, coming day after day for the shift their parent works. Each Center also accepts children, for short periods in family emergencies, who are not regularly enrolled. The Centers are open whenever the shipyards are open. For the most part this has meant a 24-hour, three-shift schedule and, during emergency periods of rush construction, a seven-day work week, assuring workers of child care whenever they need it, regardless of their work shift.

Since the Centers are operated by the two companies, the Child Service Department conforms to all personnel practices and administrative policies of the Yards. The Manager of the Child Service Department and his staff are professionally trained in the field of child development. Standards for the care of the children are determined by this professional staff. This fact, together with the quality of the staff, has influenced the confidence parents feel in using the Child Service Centers. It has also influenced the attitude of the child welfare and educational agencies in the community and the state. During the first year of operation the professional staff working with children consisted of 100 trained nursery school and kindergarten teachers, 10 registered nurses, a medical consultant, and five child nutritionists.

The operation of Child Centers to meet the particular needs of shipyard workers has led to many special services. The illness of children was a major cause of absenteeism prior to the opening of the Centers. To meet this problem each Center has its own infirmary which makes possible the care of the mildly-ill child and enables mothers to stay on the job even

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Literature on request

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though a child can not be in his play group. The infirmary staff, as well as giving first-aid and daily health inspections, saves parent-workers time by carrying on an active program of immunization right at the Center.

Another cause of absenteeism and early check-outs was the need of the women-worker for time to plan meals, to shop and to cook. To aid with this problem the Centers sell Home Service Food, pre-cooked food for the family's supper which parents can buy, ready-packaged, when they call for their child at the end of the shift.

The Child Service Centers also make a definite contribution to the morale of parent-workers, many of whom are new on the job and new in the community. The staff is constantly available for individual conferences with parents about their children. It also holds frequent group parent meetings after working hours, social affairs at which teachers and parents talk about children over a cup of coffee. When a child is absent his teacher writes a brief note home saying that he has been missed and asking when he will return. Each Center publishes a bi-weekly news letter for parents telling the interesting things their children have done at the Center. The staff also distributes without charge simple pamphlets relating to child care on questions bothersome to parents. These have covered such matters as "Should I Feed My Child at 2:00 A.M.?" "Good Meals for Swing Shift Children," "Children and War," "Clothing for Young Children," "Recipes for Foods Children Like," and "Toys to Make for Young Children."

The Centers are not self-supporting. This is impossible if the service is to be up to the best standards for the care of children. Parents pay a fee of $5.00 for a six-day week for one child, with an additional charge for children of the same family at the rate of $3.75 per child per week. This fee is similar to that charged by public-supported agencies in the community. The balance of the operating cost is borne by the two companies. Parents pay this fee either in cash each week or by means of payroll deduction which is authorized by the parent at the time of enrollment. Except for immunization and for Home Service Food no other charges are made by the Centers.

The need for the Centers and their popularity and acceptance by workers is indicated by the steady growth in regular attendance and by the extensive use of short-time emergency care. On opening day in November, 1943, the two Centers served 135 children. Less than a year later—on August 1, 1944—817 children were in the two Centers on all three shifts. In the 20-month period from their opening day to June, 1945, the two Centers served 3,811 different children, providing a total of 249,268 child care days. The Centers made it possible for mothers to work approximately 1,931,827 hours in the yards.

Public acceptance of the quality of the program for children has not only built for a better labor-management relationship, it has also contributed to local and national public relations. Staff members of the Centers receive many requests to speak at meetings of parents, educators and business men's clubs. The Centers are used constantly for observation trips by student nurses and student teachers from local hospitals and colleges. Articles describing the facilities and the program have appeared in such varied journals as *The New York Times Magazine*, *The Congressional Record*, *The Pacific Marine Review*, *The Architectural Record*, *Labor and Management News*, *The Architect and Building News* (London), *Harper's Bazaar*, and *Journal of Consulting Psychology*. *Parents Magazine* awarded its Medal for Outstanding Service to Children in 1944 for the creation of the Centers.

For those interested in further details about this program, booklets and other descriptive information may be obtained by writing, Manager, Child Service Department, Kaiser Company, Inc., Portland Yard, and Oregon Shipbuilding Corporation, P. O. Box 4259, Portland, Oregon.

DR. FORREST E. RIEKE, medical director of these Kaiser Companies, is medical consultant for the Child Service Centers.

CURRENT ARTICLES of QUALITY

Venereal Disease Education

RICHARD A. KOCH, M.D., LAWRENCE ARNSTEIN, and ARTHUR C. PAINTER, "San Francisco Industrial Venereal Disease Educational and Case-Finding Program," in the *Journal of Venereal Disease Information*, 27:1, 9-19, January, 1946. Excerpt: "To begin the program in the industrial plant, the venereal disease educator assembled the personnel managers, superintendents, and foremen and gave a brief discussion on venereal diseases and the objectives of the survey so that they, in turn, could answer questions of the employees, and create enthusiasm for the survey. Where plant employees were members of labor unions, these organizations were contacted and the aid of the business agent was enlisted in order to increase the participation of the union membership in the survey. In every case, this assistance was given, and in our opinion this cooperation was due to the initial phase of the program. A series of four "throw-aways" was planned. Each of these was designed to give progressive education leading to the survey and to be read within 20 seconds. Their distribution was started eight days before the beginning of the survey and the "throw-aways" were handed out to the employees or attached to their time cards every other day. On the days the "throw-aways" were distributed, posters corresponding in content were placed in strategic locations throughout the plant. Whenever the "throw-aways" were attached to the time cards, they were printed on a slip of paper slightly longer than the time card used and were distributed by the time clerk in the card holders. Wherever the industry had a house organ, articles and news stories were prepared and run therein. In the majority of instances the assistance of the San Francisco Tuberculosis Association was secured in performing fluoroscopic or chest x-ray examinations for tuberculosis in conjunction with the blood-testing program in order to give these surveys a dual appeal and to do a better job of public health. Wherever this combined service was offered, it was found that a higher percentage of employees availed themselves of the survey. A flow of approximately 50 persons per hour was set for these examinations and the plant was divided into its natural shop areas. For example, in a machine shop, the lathe crew would be taken, then the planers, the grinders, the assemblers, etc. Each would be taken as a unit so the *esprit de corps* would give a higher percentage of response. The personnel manager and shop foremen were requested to route the men to the survey at an approximate rate of eight every 10 minutes. In the majority of instances this procedure represented the first contact many workers had had with the health department, and every effort was made by its employees from the registration clerk to the physician securing the serologic specimen, to approach the patients with a friendly and enthusiastic attitude. These serologic surveys were usually conducted in first aid rooms of the plant, but, where these were unavailable, the survey facilities were established in plant restaurants, storerooms, or wherever a central location could be found. It was important to find central locations in order to reduce loss of employee time to a minimum. Those who had serologic examinations were advised by a printed notice that they would be notified only if their blood tests were found to be positive or questionably positive, and that they could expect to receive this notification within one month of the examination. The employees were further advised that if they received no report within one month they could assume that their examination had been negative. These voluntary surveys, done in a variety of industries throughout the city, showed an employee participation average of 92%. The entire educational, blood-testing, and roentgenologic program was carried on with an average man-hour loss of six minutes per employee. In every plant where

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the surveys were conducted, management indicated that the morale of its employees had been greatly increased because it had shown interest in their health and welfare by allowing all surveys to be done on company time with no pay loss to the employee. In some cases the cooperation between labor and management was so great that the labor unions paid for the printing of the educational leaflets. Recently many of our serologic surveys have been conducted on a pre-employment basis. The largest example of this is a war plant in San Francisco. As a result of the pre-employment serologic survey in the war plant alone, 29,419 persons were examined and 3,408 (11.6%) were found to have a positive or doubtful serologic reaction. The employees found to have a positive serologic reaction were notified by written communication, addressed to their homes, to report to the San Francisco City Clinic. This letter, mailed in a plain envelope, was written so that its contents would not be suspected by anyone who had not taken the examination. Those patients reporting to the clinic were given further serologic, physical and spinal fluid examinations. Upon the conclusion of a definite positive diagnosis, the patients were interviewed by a social service worker. Those who could afford it were referred for private treatment, and those who were unable to pay were placed under treatment at the San Francisco City Clinic or at another free or part-pay clinic. Private physicians and part-pay clinics were notified of the complete diagnosis, and, if indicated, a treatment plan was recommended. For employees in occupations where the method of work does not afford necessary plant facilities, still another method of performing serologic surveys was developed. In some of these situations the labor union established in its by-laws a requirement that all new members must have a serologic examination. Under this plan the applicant for union membership is referred to the San Francisco City Clinic for examination. Here, again, the applicant is advised that he will be notified within a period of one month if his examination is found to be positive. The pre-employment examination by management has the advantage of minimizing the number of public health personnel used in the serologic survey work. The epidemiologic follow-up of the persons with positive serologic examinations who fail to respond to a written communication alone is difficult to achieve. Under the plan by which the labor union requires its members to have an examination, arrangements have been made whereby the labor union is notified of those persons who do not complete their examination. The union then requires the member to report for further examination, failure to do so resulting in loss of membership in the union which is participating in the program and, consequently, in loss of employment."

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Welding: the Medical Viewpoint

EILER H. SCHIÖTZ, "Welding Regarded from the Medical Point of View," in *Acta Medica Scañdiñavica*, Vol. CXXI (121). Extract: "Poisoning or other occupational diseases among autogenic welders and burners may be due to: (1) Impurities in unrefined acetylene: phosphoretted, arsenicuretted or sulphuretted hydrogen. (2) Gases evolved in the welding flame: nitrous fumes. Vapours or gases from the metal which is being treated: metal oxides (especially oxides of lead and zinc), acrolein, carbon monoxide. From his own observations, from the records of the State Insurance Office and from the annual reports of the Chief Inspector of Factories the author has collected 13 cases of presumable poisoning with nitrous fumes during autogenic welding and burning which occurred in Norway in the last 20 years, two of them with fatal issue. Case-histories and clinical findings are reported. Poisoning or other occupational diseases among electric welders may be due to: (1) Inhalation of welding smoke, which consists of: (a) Gases from the arc flame (nitrous fumes, mostly in infinitely small quantities). (b) Vapours from the electrode metal and from the coating of the electrode (oxides of iron, manganese, calcium, titanium, et cetera). Siderosis pulmonum has not infrequently been noted among electric welders. Irritation phenomena in the upper air passages and digestive troubles are often prominent features. (c) Vapours from the metal which is being welded (as in autogenic welding). (2) Rays from the arc flame: especially ultra-violet rays, which give rise to electric ophthalmia, a disorder frequently occurring among electric welders which is often known as 'welders blindness.'"

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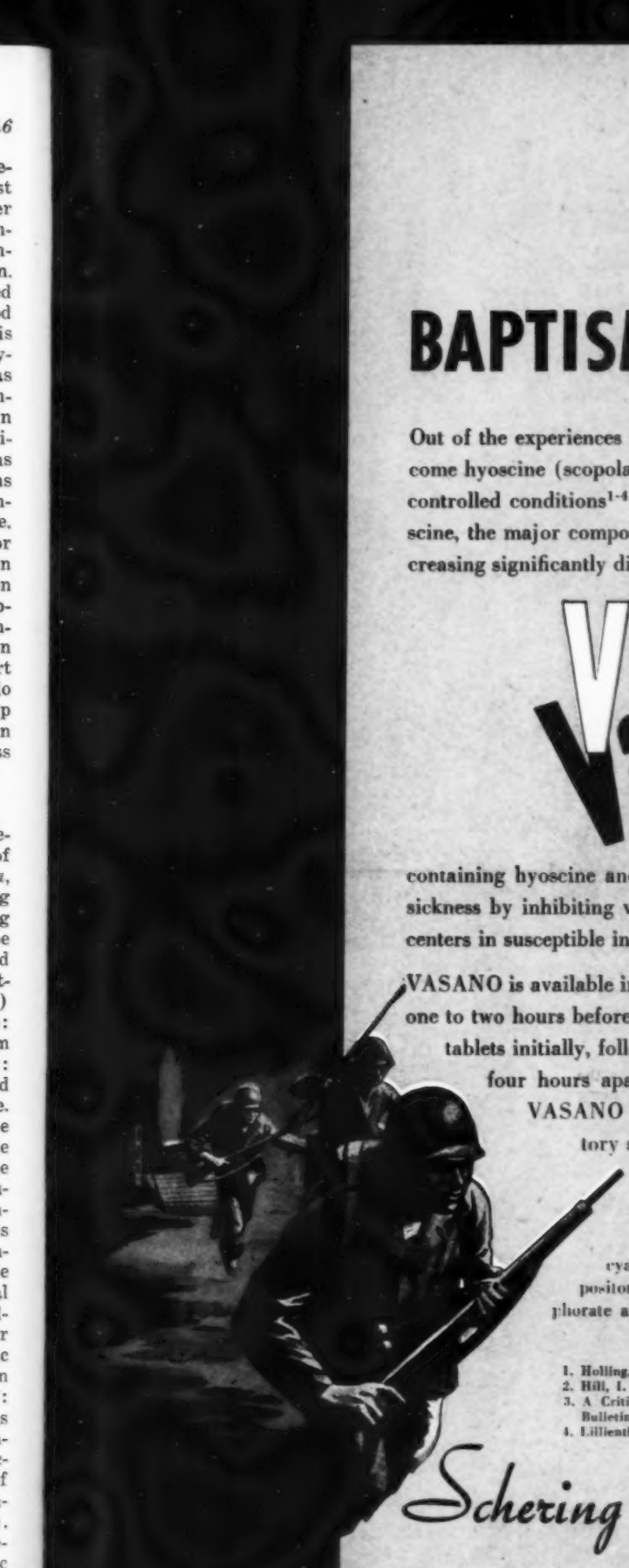

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2. Hill, I. G. W., and Guest, A. I.: Brit. M. J. 2:6, 1945.
3. A Critical Study of Seasickness Remedies, No. 4, Royal Naval Medical Bulletin 24:3, 1943, abstracted, Bulletin of War Medicine 18:1242, 1944.
4. Lilienthal, J. L.: J. Aviation Med. 16:59, 1945.

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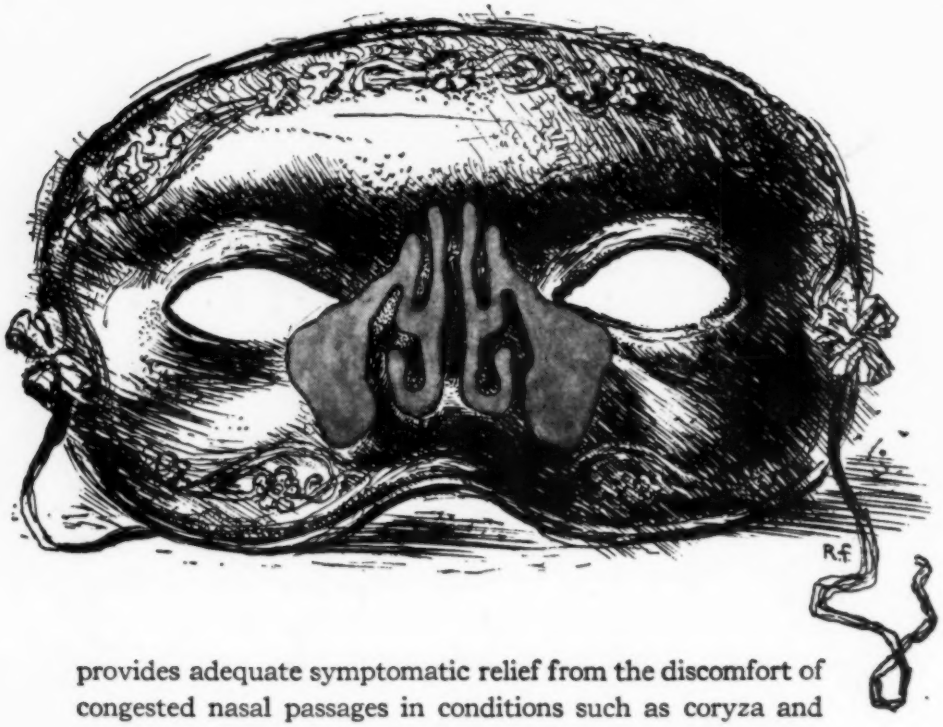

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